RPP-13741
Revision 0

COMPLETION REPORT FOR PROBE HOLE C3830 (TX-105) TX TANK FARM 200 WEST AREA

K. D. Reynolds

Duratek Federal Services, Inc., Northwest Operations

March 2003

Prepared for the Office of River Protection, CH2M HILL Hanford Group, Inc.
Richland, Washington

CONTENTS

LIST OF FIGURES AND PLATE

LIST OF TABLES

TERMS

BGS	below ground surface
cm	centimeter
cps	counts per second
DOE	U.S. Department of Energy
ft	foot
ft•lb	foot-pound
in.	inch
MDL	minimum detection limit
pCi/g	picocuries per gram
vf%	volume fraction percent moisture

COMPLETION REPORT FOR PROBE HOLE C3830 (TX-105) TX TANK FARM 200 WEST AREA

1.0 INTRODUCTION

The U.S. Department of Energy (DOE) assigned the River Protection Project Single-Shell Tank Program the tasks of transferring waste from the single-shell tanks to double-shell tanks and developing and implementing a strategy to retrieve single-shell tank and miscellaneous underground storage tank waste. In support of the eventual retrieval of this waste, the Single-Shell Tank Program Vadose Zone Project was given responsibility for collecting and providing subsurface data from the single-shell tank farm facilities. This data is intended to provide an understanding of the distribution and movement of contaminants in the vadose zone under and adjacent to the tank farms. Subsequently, a work plan was prepared to collect field characterization data in and near Waste Management Area TX. This planned activity is intended to support decision-making relative to DOE/RL-99-36, *Phase 1 RCRA Facility Investigation/Corrective Measures Study Work Plan for Single-Shell Tank Waste Management Areas*. The document, RPP-7578, *Site-Specific SST Phase 1 RFI/CMS Work Plan Addendum for WMAs T and TX-TY*, was necessary to identify and plan characterization efforts as part of DOE/RL-99-36.

The data requirement goals identified through a data quality objective process are documented in RPP-7578. The outlined goals include the tasks, project responsibilities, and schedules for the characterization efforts. One of the identified field characterization efforts is the collection of vadose zone data from the installation of up to four closed-end probe holes in the TX tank farm.

Utilizing RPP-7578 as guidance, DFSNW-DOW-006, *Description of Work: Drilling and Sampling* was prepared defining the methodology and actions for drilling and sampling a series of probe holes in the TX tank farm. This report provides information for the planned series of probe driving activities. DFSNW-DOW-006 included selected sampling depths, borehole construction and sampling methodologies, geophysical logging requirements, decommissioning directions, environmental health and safety program directions and quality control drivers. This borehole completion report is a summary of activities and sampling efforts of probe hole C3830 adjacent to tank TX-105 and near tank TX-101. This is the final probe hole of the series planned under DFSNW-DOW-006. See Figure 1 for a location map of the 241-TX tank farm and Figure 2 for a detailed location map of C3830 and other wells, probe locations, and tanks in the project area. Appendices to this completion report contain copies of the following documentation generated during performance of the outlined work:

- Field Activity Reports (Appendix A)
- Geologic/Sample Logs (Appendix B)

- Geophysical Logs (Appendix C)
  - High-Purity Germanium (HPGe) and moisture logs from probe hole C3830
- Chain of Custody/Sample Analysis Requests (Appendix D [includes summary sheets])
- Blow Count Forms (Appendix E)
  - Casing driving
- Field Logbook Entries (Appendix F)
- Equipment Cleaning Form (Appendix G)
- Washington State Department of Ecology (Ecology) documentation (Appendix H)
  - Start and decommissioning cards
  - Completion report
- Vadose Zone Tensiometer Placement (Appendix I)
  - Instrument detail diagram
  - Percolation test graphs
  - As-Built Diagram
  - Memo detailing instrument placement
- Noise Monitoring (Appendix J)

Figure 1. Location of 241-TX Tank Farm.

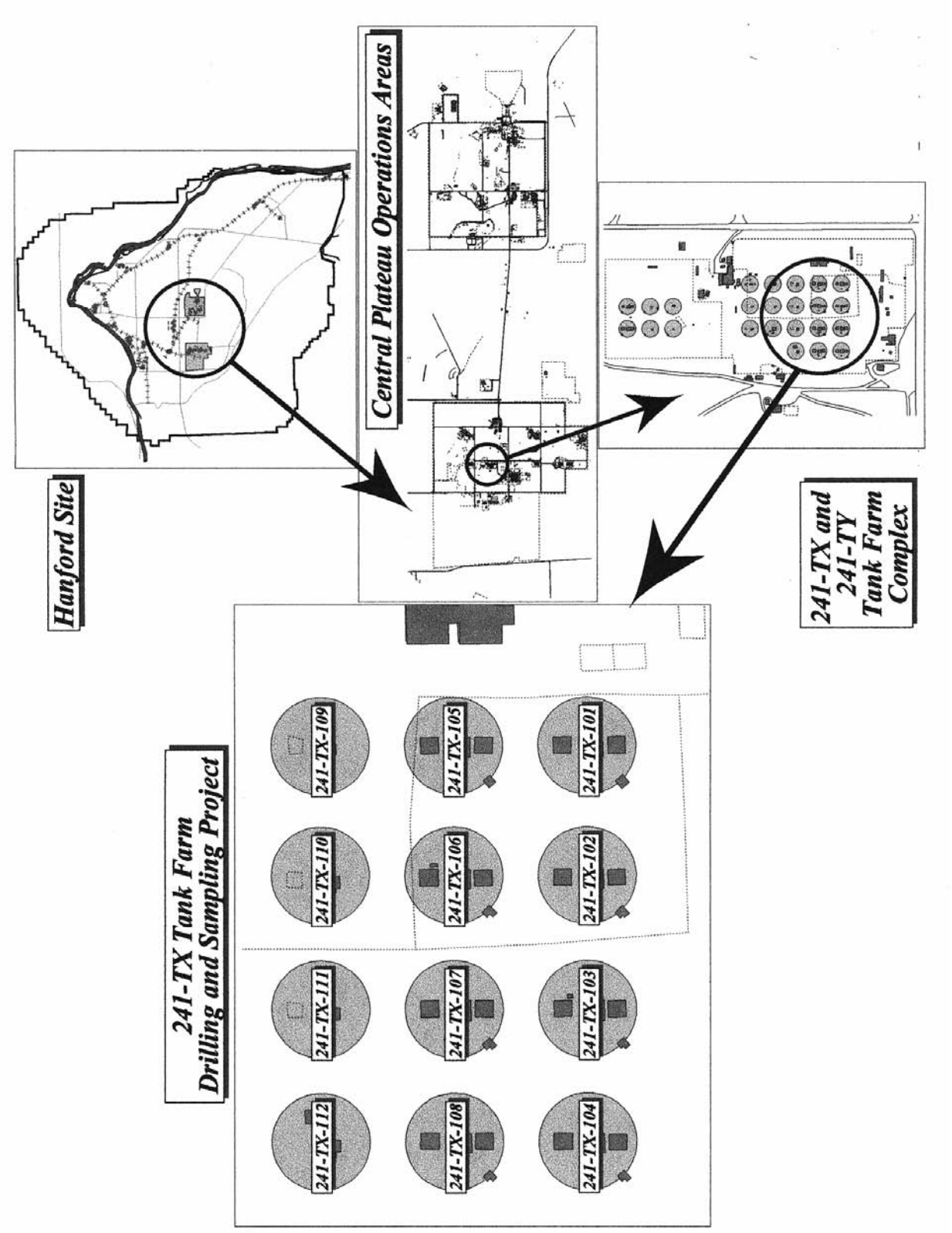
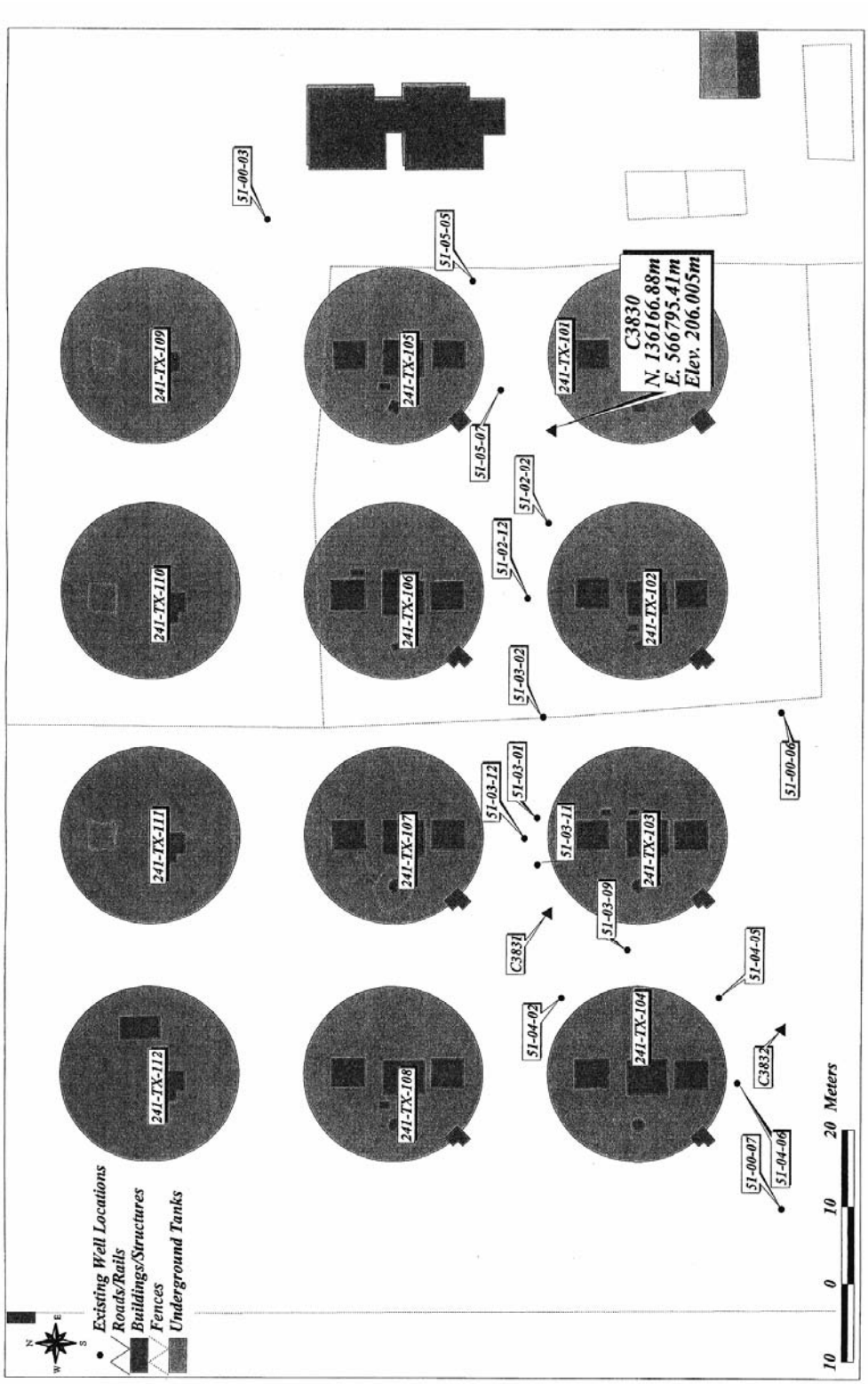


Figure 2. C3830 and Other Wells, Probe Locations, and Tanks.



2.0 SUMMARY OF ACTIVITIES

Duratek Federal Services, Inc., Northwest Operations (DFSNW) began preliminary design and procurement planning for samplers, casing jacks and wrenches in support of the TX scope of work in late January 2002. This was followed by procurement of the necessary field equipment and support (drill pipe, casing, casing tips and shoes, samplers, casing and drill pipe wrenches, casing jacks and contracting for drilling support) in February and March. Fifteen dry wells in the vicinity of the planned probes were selected for moisture logging and were logged and analyzed by late February 2002. Concurrent with equipment procurement and moisture logging and analysis, DFSNW-DOW-006 was prepared and submitted. The purpose of DFSNW-DOW-006 was to guide field activities, call out selected sample depths and provide documentation of planned activities to tank farm operations. The first probe hole of the series (C3832) adjacent to single shell tank TX-104 was completed during May and June of 2002, the second (C3831) was completed during July and the first two weeks of August.

Field activities relating to C3830 (the third and last of the three planned probes) commenced with mobilization of the probe driving platform and support equipment from C3831 (TX-107) to the C3830 (TX-105) probe site on August 15, 2002. Field Activity Reports were generated by DFSNW field oversight personnel for each day of the deployment and copies are included in Appendix A. Excluding weekends and holidays there were 25 field days associated with mobilization, drilling, sampling, logging, decommissioning, and de-mobilization related to probe hole C3830. The total days on location included one and one-half days of rig-up activities, four days for borehole decommissioning and vadose tensiometer placement, five days of geophysical logging, and 11 days of driving casing and sampling. At the conclusion of the decommissioning and tensiometer placements three and one-half days were required to demobilize the drilling platform and support equipment from the TX Tank Farm. During field operations for this probe hole no full days were lost as down time from rig failures, weather delays or other operational problems. A total of 18 hours was lost for the listed causes during C3830 activities over the 25 days of field operations. The total depth of 116.75 ft below ground surface (BGS), as measured by steel line tape, was reached on September 5, 2002. At this depth the probe tip was approximately 2.95 ft into the highly cemented portion of the calcium carbonates of the Cold Creek sediments. Blow counts exceeded manufacture's recommended numbers per advance depth at this point. Prior to decommissioning, geophysical logging was completed to total depth with moisture and HPGe spectral gamma detectors. During the decommissioning process two small scale percolation tests were conducted and four (4) sets of in situ tensiometers were placed at depths of 96.25 ft, 49.95 ft, 7.45 ft and 2.9 ft BGS. See Appendix H for the Washington-State-required Water Well Report documenting the borehole construction details and Appendix I for graphed details of the percolation tests, tensiometer instruments and an As-Built diagram of the instrument placements.

Eighteen (18) split-spoon samples, 1.25 ft long x 2.5 in. in diameter, were collected at specified depths for potential chemical and radiological analysis during the drilling/driving of this probe. (See Appendix D for information regarding sample depth, Chain of Custody, etc. and Appendix B for geologic descriptions of the samples retrieved).

The position of this boring was initially located by CH2M HILL Hanford Group, Inc. DFSNW personnel subsequently documented the location at Easting 566795.41 m, Northing 136166.88 m at an elevation above sea level of 206.005 m (675.869 ft) by use of Global Positioning Satellite instrumentation.

3.0 DRILLING AND SAMPLING DETAILS

3.1 DRILLING

Per the referenced description of work (DFSNW-DOW-006), the casing utilized was a design configuration proven at the SX-108 Slant Borehole Project; e.g., P-110 carbon steel, 18 cm (7-in.) OD x 13 cm (5-13/16-in.) ID with a pin pile thread. Details of the design configuration and methodology are discussed in RPP-6917, *SX-108 Slant Borehole Completion Report*. The majority of the casing string was composed of 5-ft joints with several 2-, 3- and 4-ft joints for positioning the probe end at proposed sampling intervals. Based on engineering calculations, prior testing and previous success at SX-108, the thread pattern was selected to withstand the expected driving force as well as the maximum pull back capacity of the casing jacks. The drilling rig was equipped with an ICE-40 pile driver, which delivers approximately 40,000 ft•lb of force in the vertical position. The rig, pile driver and remote handling arm configuration were successfully utilized previously for the SX-108 Slant Borehole project. The pile driver provided adequate force to drive the casing to a total depth of 116.75 ft BGS. At approximately 113.8 ft BGS the first occurrence of the highly cemented facies of the Cold Creek sediments were encountered and only another 2.95 ft of further casing advance was possible. At this point the blow counts exceeded the manufacture's recommendations and the casing was determined to be at refusal. Because of lessons learned from C3832 (TX-104)and the success of the C3831 (TX-107) effort, the designed base plate with attachment points for the jacks was again utilized to control the jack position and aid in casing alignment.

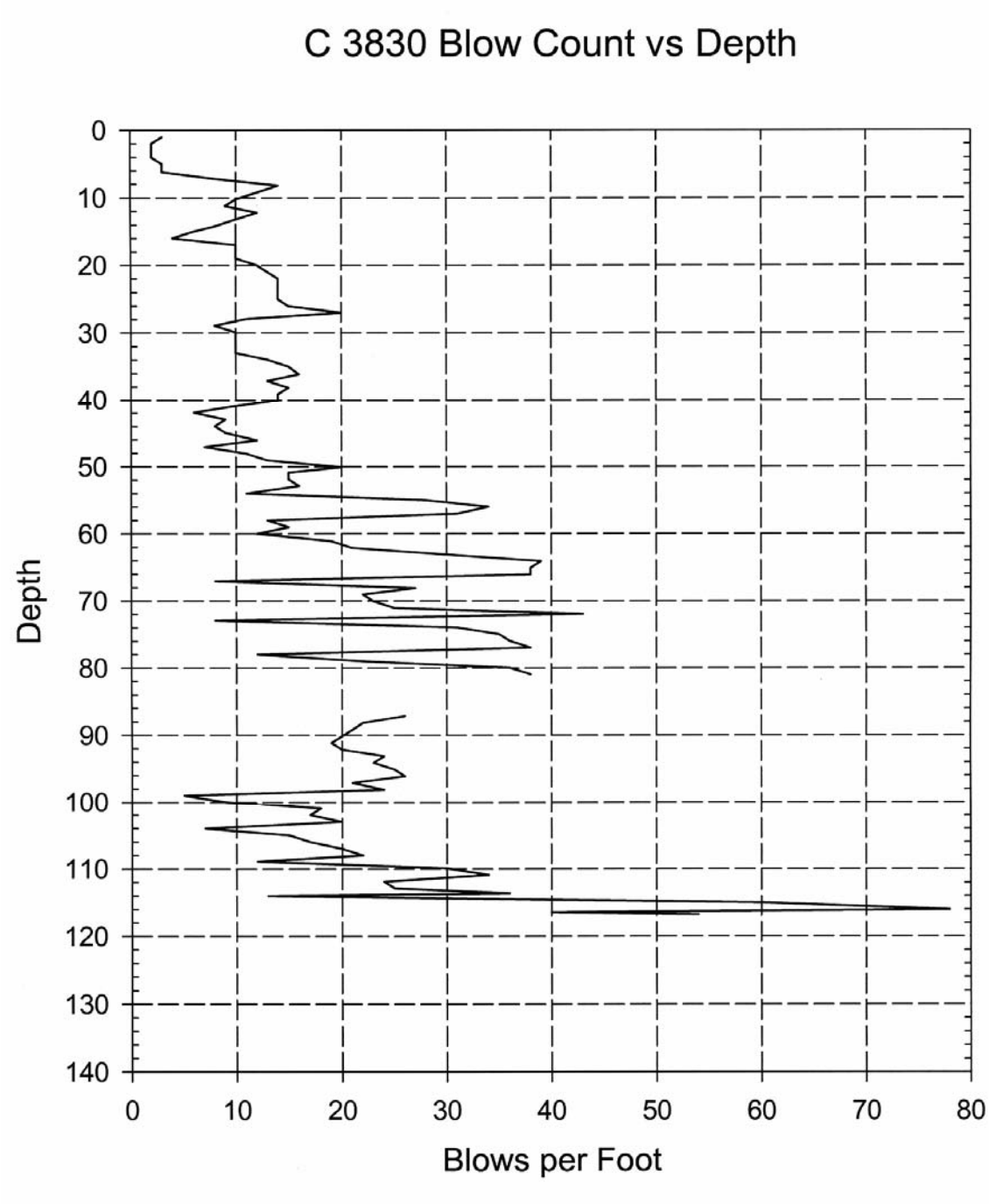
No problems with handling or making up the casing were encountered. Minor problems with operation and maintenance of the wrench breakout and jack system continued during the activities for this probe hole. Approximately six hours of operational time were expended adjusting, cleaning and realigning the jacks, wrenches and driving apparatus during the 11 days of driving activities. Modifications and improvement of the system are still ongoing. Improvements in the system and increasing crew efficiencies have resulted in shorter job duration when compared to the previous probe holes in TX. The initial driving activities at C3832 required 18 days, C3831 required 15 days and C3830 required 11 days to collect roughly the same number of samples and reach depths equivalent to the first two probe holes. The changes in pipe handling methodologies and improved crew work efficiencies have contributed to an approximate 35% reduction in the time required to complete the field activities.

3.1.1 Casing Driving

To accomplish the objectives of acquiring samples the casing was driven in a closed configuration (e.g., removable tip in place) to the planned sample depths, and the tip and inner rod were then removed. A sampler was placed on the rods, inserted through the casing to total depth and the pile driver was utilized to drive the sampler ahead. The manufacturer of the pile driver has recommended an operational limit for determining refusal. That limit is reached when less than one inch of casing advance is gained for 10 full stroke blows of the pile driver.

Blow counts vs. advancement of the casing were recorded and, as expected, varied over depth. Field records (blow counts recorded during driving of the casing to total depth) are provided in Appendix E. Tracking and comparison of blow counts when utilizing this type of pile driver for engineering purposes is complicated by the fact that the hammer reacts to the resistance of the probe to advance. When little resistance is encountered, the hammer does not stroke to its full length and less than the maximum 40,000 ft•lb is applied to advance the casing. When resistance to the advance of the probe increases, full hammer strokes occur and the full potential force of the hammer is used to advance the casing. Figure 3 is a graphic representation of the blow count vs. depth for C3830. At a depth of 112 ft BGS the blow count increased from an average of 20 to 35 blows per foot to 70+ blows per foot. This increased resistance to driving was interpreted as increased resistance to casing advance caused by the caliche-rich silt facies of the Cold Creek. The contact of the Cold Creek with overlying Hanford sand and silts is observed to have occurred at 99.5 ft BGS (as described in sample 14 taken from 98.97 ft to 100.36 ft BGS). Casing refusal (blow counts in excess of 10 blows per inch) occurred between 113.8 ft. and 116.75 ft. BGS. Between these depths, blow counts exceeded 70 blows per 6 inches (i.e., less than one inch per 10 blows-refusal). The contact between the carbonate rich sands and silts and the highly cemented zones was observed to have occurred at 113.8 ft BGS in a sample collected from 113.55 ft to 115.0 ft BGS. Casing was driven to a total depth of 116.75 ft (1.75 ft past the last sample interval).

Figure 3. C3830 Blow Counts—Depth vs. Blow.



3.1.2 Split-Spoon Sampler

A split-spoon sampler with an additional inner steel liner for increased structural strength was specially designed for collecting sediment samples ahead of the driven casing. This sampler collects a 2.5-in. x 1-ft driven sample in two 6-in. long stainless steel liners. Additional material is retrieved in the .25-ft (3-in.) long drive shoe (nose cone) of the sampler body. The sampler body is designed to house the split liner and the sample liners. For this scope of work a sampler utilized in the SX-108 Project was redesigned to accommodate larger liners (2.5-in. vs. 2-in.) through removal of the lead shielding utilized for the previous deployment. Removing the shielding and increasing sample size were undertaken because of the lower expected contamination levels when compared to the previous deployment. This lower expected level of radioactive contamination allowed larger volumes of soil with less shielding to be safely handled at the surface in the field and at the laboratory. The sampler is deployed and advanced by use of an inner string of 4½-in. drill pipe.

Sample handling and any potential contaminate spread, as well as potential exposure of onsite personnel were minimized by capping the bottom of the split-spoon sampler, placing it in a transport container and using the remote-handling arm. The complete split-spoon assembly was placed in a transport drum and transported to Pacific Northwest National Laboratory with the sample intact in the split spoon. The laboratory performed the breakout of the samples from the split spoon and extruded the soil from the liners. No onsite breakdown of the samples was performed.

3.2 SAMPLING

3.2.1 Soil Sampling

During advancement of the borehole, sampling was attempted 18 times using a split-spoon sampler. The split spoon was driven utilizing the diesel pile drive hammer a minimum of 1.25 ft into the bottom of the borehole at each selected sample location. Overdriving of the sampler on the C3832 (TX-104) probe hole had resulted in problems in the laboratory when attempting to remove the samples from the stainless steel inner liners. No sample over compaction problems were reported by the laboratory for removal of the samples retrieved from C 3830.

Projected target depths for sample collection were first outlined in the referenced RFI/CMS documentation (RPP-7578) prepared by CH2M HILL. Further refinement of the preferred sample depths was derived by performing moisture logging in 14 dry wells surrounding all of the proposed probe locations in the TX Farm. To accomplish the target refinement, cross section correlations of observable and identifiable geologic features were prepared from the logging data. These features were compared to the sample depths identified in the RFI/CMS (RPP-7578) and with the approval of the CH2M HILL Project Lead, sampling targets based on projected geologic features (e.g., facies contacts, grain size changes, features such as tank excavation compaction zones) were selected and documented in DFSNW-DOW-006. Table 1 below provides information on targeted sample depths, actual sample depths, generalized geophysical log detections and sediment types for the interval.

Table 1. Sample Depths.

DOW Target (C3830)	TX-105 (3830)	Log Detections/sediment
15-16	14.96-16.31	no remarks/backfill sand
28-29	27.91-29.25	moisture (m) inc/backfill sand-gravel
41-42	40.93-42.49	slight m inc/backfill gravelly sand
46-47	46.05-47.5	no remarks/backfill gravel-sand
47-48	47.5-49.0	m inc/backfill gravel-sand
53-54	52.98-54.36	m-gamma inc/backfill contact -Hanford bdd slt-and
57-58	56.99-58.37	m-inc/fine-med snd
59-60	58.29-59.7	m-peak/snd-slt interbds
66-67	66.06-67.46	incr m-slight gamma inc/ H. med sand
72-73	71.95-73.3	H. med-fine sand
77-78	76.98-78.35	slty fine sand, interbdd med sand
81-82	80.91-82.21	m increase/fine-med sand
86-87	86.11-87.41	m-peak/ med sand change to 86.6 slt-snd interbds
99-100	98.97-100.36	m peak, gamm inc/H-Cold Creek contact, snd w lam silt-snd
100-101	100.32-101.72	m peak, gamm peak/lam fine-med snd w silt
103-104	102.99-104.44	low m, gamma high/compacted silt lam
108-109	107.89-109.19	decrease m-gamma/silt to fine sand
Unplanned Refusal	113.55-115.00	decrease m-gamma/silt with contact caliche 113.8
119-120		
124-125		
134-135		
146-147		

Of the 18 samples collected, 34 of the 36 six-inch liners recovered were 100% full. Two liners from samples taken at 102.99 ft BGS and 107.89 ft BGS (one liner in each of the two sample areas) were only 90% full on recovery. At the time of this report no detailed information relating to laboratory-derived soil moisture content, sample radiochemistry or chemical contamination is available. As noted above several samples were taken in zones that had characteristics that correlate to the geophysical responses observed on the log plots in Appendix C. Descriptions of

the sediments retrieved in the 18 samples are found in Appendix B and Plate 1 (a graphic depiction of the geophysics, expected lithologies and retrieved samples with sample descriptions and formation contact depths).

3.3 GEOPHYSICAL LOGGING

Prior to the initiation of probe driving activities, open dry wells in the vicinity of the probe locations were reviewed for accessibility. Fifteen wells were selected for potential logging. See Figure 2 for the location of the wells selected (marked with tank farm well numbers, for example 51-04-05). Fourteen of the wells were subsequently logged by DFSNW with neutron-moisture instrumentation developed specifically for use at Hanford by DFSNW and analyzed for percent volume moisture content. Results of this logging scope (log plots, log data reports and analysis reports) were reported in Appendix C of RPP-12017, *Completion Report for Probe Hole C3832 (TX-104) TX Tank Farm 200 West Area*. Correlation cross-sections utilizing these logs were generated to select sample depths for the probe locations. Table 2 below lists the dry wells utilized for cross section correlation.

Table 2. Dry Wells Utilized for Cross-Section Correlation.

1. 51-00-07
2. 51-04-06
3. 51-04-05
4. 51-03-09
5. 51-04-02
6. 51-03-11
7. 51-03-12
8. 51-03-01
9. 51-03-02
10. 51-00-06
11. 51-02-02
12. 51-05-07
13. 51-05-05
14. 51-00-03

When the C3830 probe reached refusal (total depth) the inner drill string and tip were removed and geophysical logging was conducted utilizing DFSNW equipment and personnel prior to decommissioning of the probe hole. Appendix C contains copies of the log plots, log data reports, analysis results, and interpretations generated from the probe hole (See log plots for C3830 in Appendix C). The following logging suites were utilized:

1. Gross gamma
2. Spectral (HPgE) gamma logging
3. Neutron-Moisture.

The total gamma logs for the probe hole show several areas of marked changes in the background count rates. The first high count area (approximately 310–320 counts per second) at 1 ft BGS corresponds to the highest Cs-137 contamination observed in the borehole. Cesium was detected from surface to approximately 11 ft BGS with the peak level of 7.5 pCi/g at 1 ft BGS. No other Cesium detections above the minimum detection levels (MDL) of the instrumentation (0.1 pCi/g) were encountered in the probe hole. An additional change in total gamma count rate occurs where an increase from an average 150 cps to approximately 200 cps is

observable at approximately 52 ft. BGS. This change corresponds to the depth where the probe crossed from tank excavation backfill into undisturbed Hanford sediments and is reflected in an approximate 5 pCi/g increase in natural potassium ratio. The volume percent moisture log also reflects this material (formation) change by demonstrating an increase from an average of 5 to 7 vf % in the back fill to 7 to 9 vf % in the undisturbed Hanford sediments. The total gamma count rate also increases from approximately 200 counts to 250 to 300 counts in the 98 ft to 110 ft BGS zone. This depth corresponds with the transition from Hanford sands and silts into the Cold Creek facies of silts- and carbonate-rich sediments. The total count increase is reflected in a marked thorium concentration change, as it relates to the natural potassium/uranium/thorium ratios of spectral response measured by the HPGe detector. Indications of uranium at levels below the statistically valid detection level (10 pCi/g) were observed in the 50 ft to 68 ft BGS interval, as shown on the log plots contained in Appendix C.

4.0 PROBE HOLE DECOMMISSIONING

Decommissioning of probe hole and construction of the borehole tensiometer placement for C3830 commenced on September 16, 2002, and the installation and decommissioning was completed on September 19, 2002. Decommissioning activities met all applicable sections of WAC 173-160, "Minimum Standards for Construction and Maintenance of Wells," requirements. As the casing was extracted, dry bentonite materials were added to fill the annular space. Approximately 40 cubic feet of material (39.8 ft^3 in 56 sacks) was placed into the probe hole as the casing was extracted. This volume slightly exceeds the minimal calculated volume (35.4 ft^3) for filling the void space created by casing extraction. The probe hole was filled within approximately one ft of grade and covered with gravel to conform to tank farm requirements.

Two percolation tests were conducted to provide baseline information relating to formation conductivity at 103.54 ft to 105.87 ft BGS and at 57.01 ft to 59.05 ft BGS. Appendix I contains the graphs of the falling head test data and an As-Built diagram of the final construction.

As the borehole was backfilled with bentonite the percolation test zones were isolated from the bentonite filled sections by placement of a sand pad approximately 1 ft in thickness. A measured volume of water was then added to the borehole and the infiltration rate (increase in depth to water as the fluid penetrated the borehole wall) was monitored. To avoid having the testing influence the instrument readings after placement, the test zones were filled with an additional ±4 ft of bentonite, and the instruments were placed in the borehole surrounded by sand. After the instruments were encased in the sand, bentonite was added to fill the borehole to the next instrument placement zone. The details of the construction are depicted on the As-Built diagram in Appendix I.

5.0 ENVIRONMENTAL, SAFETY, AND HEALTH

During the field operations, the job site was surveyed by both DFSNW Operations Safety and CH2M HILL Hanford Group, Inc., Tank Farm Industrial Hygiene and Safety personnel for safety and health compliance. To ensure compliance with hearing protection guidelines, noise levels were monitored during the first set of probe driving operations. The results of this monitoring are provided in Appendix J for reference. There were no lost time, reportable *Occupational Safety and Health Act of 1970* injuries, or first aid cases during performance of the work activities relating to this scope of work.

6.0 REFERENCES

DFSNW-DOW-006, 2002, *Description of Work: Drilling and Sampling,* Rev. 0, Duratek Federal Services, Inc., Northwest Operations, Richland, Washington.

DOE/RL-99-36, 1999, *Phase 1 RCRA Facility Investigation/Corrective Measures Study Work Plan for Single-Shell Tank Waste Management Areas*, U.S. Department of Energy, Richland Operations Office, Richland, Washington.

Occupational Safety and Health Act of 1970, 29 USC 651 et seq.

RPP-6917, 2000, *SX-108 Slant Borehole Completion Report*, Rev. 0, prepared by Waste Management Technical Services for CH2M HILL Hanford Group, Inc., Single Shell Tank Farms Vadose Zone Program, Richland, Washington.

RPP-7578, 2001, *Site-Specific SST Phase 1 RFI/CMS Work Plan Addendum for WMAs T and TX-TY,* Rev. 0, CH2M HILL Hanford Group, Inc., Richland, Washington.

RPP-12017, 2002, *Completion Report for Probe Hole C3832 (TX-104) TX Tank Farm 200 West Area*, Rev. 0, prepared by Duratek Federal Services, Inc., Northwest Operations, for CH2M Hill Hanford Group, Inc., Richland, Washington.

WAC 173-160, "Minimum Standards for Construction and Maintenance of Wells," *Washington Administrative Code*, as amended.

This page intentionally left blank.

APPENDIX A

FIELD ACTIVITY REPORTS

This page intentionally left blank.

Duratek Federal Services, Inc., Northwest Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

WELL I.D.: C3830	*WELL NUMBER*: N/A	*REPORT NUMBER*: 71	*DATE*: August 15, 2002 Thursday
CONTRACT NUMBER: 8248-55	*START CARD NO*: S00631		*RIG MODEL/NO*: SIMCO 5000 (Rig 106)
PURPOSE: Daily safety meeting. Remove shoe, prepare rig for moving to next site.		*REFERENCE*: DFSNW-DOW-006, Rev. 0	*LOCATION*: TX Tank Farm, 200 West
REFERENCE MEASURING POINT: Steel Plate plus 0.25 ft (ground level)		*TOTAL SHIFT FOOTAGE*: 0.0 ft.	

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
7.0 " OD	NA	CS	Shoe, 7.5 " OD	0 ft	0 ft.

BORING DEPTH: START: 0 ft END: 0 ft

START TIME: 07:00
END TIME: 16:30
CONTRACTOR TIME: 0.5
TOTAL TIME: 9.5

DOCUMENTED DOWNTIME

N/A

WEATHER CONDITIONS (373-2716 or 373-2710)
8:30
81F, wind NW 8-12 mph, WBGT 70F, 25% humidity, 29.16 barometric pressure

CASING SUMMARY

Bottom of 7 " OD casing (start of shift) = 0 ft.
Bottom of 7" OD casing (end of shift) = 0 ft.
Casing (7 in OD) stick up (end of shift) = 0 ft.
Total casing = 0 ft.

SAMPLE SUMMARY

N/A

PERSONNEL:
OPERATOR: K. Olson
D Morris/D Curry
WA LICENSE #: 1217
OTHER: S.H. Worley
R. Sharp (Opr)
K. Johnson (PIC)
K. Harteilius (HPT)

TIME FROM	TO	*DESCRIPTION OF OPERATIONS/REMARKS*
07:30	8:00	Conduct daily safety meeting. During the daily safety meeting crew discussed anticipated activities: Removal of shoe, Lay down mast and have rig prepared for moving to next site.
8:05	9:30	In Farm. Equipment inspection completed with no deficiencies noted. Removed shoe, moved casings, started the addition of the revised ""ring""for the casing slips. Required tap to clean threads came out of farm to collect tools and take a break.
9:45	11:30	Back in the farm attach "Ring". 10:30 Layed Mast down. Secured Rig.
11:30	12:00	Lunch
12:00	1:00	More prep. Work for moving rig. Secured the Casing Jacks.
1:00	1:30	Pre-Job meeting! New Package has arrived! Reviewed JHA, Route map and rig placement
1:30	1:45	Waiting for Truck/Teamsters
1:45	2:30	Teamster/truck here signed in and in the Farm! Rig has been moved off site and staged away from tanks to be placed in position on Monday morning! Surveyed out of farm.

REPORT BY: S. H. Worley
TITLE: Field Team Lead
SIGNATURE: S. H. Worley

REVIEWED BY: MG Gardner
TITLE: Project Manager DATE: 10-8-02
SIGNATURE: MG Gardner

Duratek Federal Services

Duratek Federal Services, Inc., Northwest Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

WELL I.D.: C3830	*WELL NUMBER*: N/A	*REPORT NUMBER*: 72	*DATE:* August 19, 2002 Monday
CONTRACT NUMBER: 8248-55	*START CARD NO*: S00631	*RIG MODEL/NO*: SIMCO 5000 (Rig 106)	
PURPOSE: Daily safety meeting. Set-up drill unit and support equipment.	*REFERENCE*: DFSNW-DOW-006, Rev. 0	*LOCATION*: TX Tank Farm, 200 West	
REFERENCE MEASURING POINT: Steel Plate plus 0.25 ft (ground level)	*TOTAL SHIFT FOOTAGE*: 0.0 ft.		

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
7.0 " OD	NA	CS	Shoe, 7.5 " OD	0 ft	0 ft.

BORING DEPTH: START: 0 ft END: 0 ft

START TIME: 07:00
END TIME: 16:30
CONTRACTOR TIME: 0.5
TOTAL TIME: 9.5

DOCUMENTED DOWNTIME

N/A

WEATHER CONDITIONS (373-2716 or 373-2710)
9:30 75F, wind N 3 mph, WBGT 70F, 32% humidity, 29.06 barometric pressure

CASING SUMMARY

Bottom of 7 " OD casing (start of shift)	= 0 ft.
Bottom of 7" OD casing (end of shift)	= 0 ft
Casing (7 in OD) stick up (end of shift)	= 0 ft.
Total casing	= 0 ft.

SAMPLE SUMMARY

N/A

PERSONNEL:
OPERATOR: K. Olson
D Morris/D Curry
WA LICENSE #: 1217
OTHER: S.H. Worley
R. Sharp (Opr)
K. Johnson (PIC)
K. Hartilius (HPT)

TIME FROM	TO	*DESCRIPTION OF OPERATIONS/REMARKS*
07:20		Arrive on site, Blue water Crew, Ricky and Klint only folks on site. Waiting for truck drivers to move rig and Steel plate. Conduct daily safety meeting. During the daily safety meeting crew discussed anticipated activities. Tire low on Rig, tried calling shop (busy) Kenny arrives he has compressor and will retrieve more hose to reach tire from outside fence.(7:45) Unlocked gate to get the plate moved,
7:50		Truck drivers arrive, sent to ACE in. Opened Farm Gate Crew in to move steel plate and oil pad.
9:30		Rig in transport to next hole.
10:30		Rig set, truck out of the farm, Out of farm for break.
10:45	12:00	In Farm to set up rig.
12:00	12:30	Lunch
12:30	16:30	Rig Set-up, Casing set up over the hole, ready to drill tomorrow AM. (10.23' of 7" casing including shoe)
		Will need height of deck from ground-surface and other relevant base measurements.

REPORT BY: S.H. Worley
TITLE: Field Team Lead
SIGNATURE: S.H. Worley

REVIEWED BY: MG Gardner
TITLE: Project Manager DATE: 10-8-02
SIGNATURE: MGardner

Duratek Federal Services, Inc., Northwest Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 3

WELL I.D.: C3830	*WELL NUMBER*: N/A	*REPORT NUMBER*: 73	*DATE*: August 20, 2002 Tuesday
CONTRACT NUMBER: 8248-55	*START CARD NO*: S00631	*RIG MODEL/NO*: SIMCO 5000 (Rig 106)	
PURPOSE: Daily safety meeting. Drive casing to a depth of 27.91ft. Obtain samples S02083-01 (equip blank), S02083-02 and S02083-03.	*REFERENCE*: DFSNW-DOW-006, Rev. 0	*LOCATION*: TX Tank Farm, 200 West	
REFERENCE MEASURING POINT: Steel Plate plus 0.25 ft (ground level)		*TOTAL SHIFT FOOTAGE*: 29.25 ft.	

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
7.0 " OD	NA	CS	Shoe, 7.5 " OD	0 ft	27.91 ft

BORING DEPTH: START: 0 ft

END: 29.25 ft

START TIME: 07:00
END TIME: 16:30
CONTRACTOR TIME: 0.5
TOTAL TIME: 9.5

DOCUMENTED DOWNTIME

N/A

WEATHER CONDITIONS (373-2716 or 373-2710)
9:30 75F, wind N 3 mph, WBGT 70F, 32% humidity, 29.06 barometric pressure

CASING SUMMARY

Bottom of 7 " OD casing (start of shift) = 0 ft.
Bottom of 7" OD casing (end of shift) = 27.91 ft
Casing (7 in OD) stick up (end of shift) = 1.0 ft
Total casing = 26.09 ft

SAMPLE SUMMARY

Equipment Blank: S02083-01
Sample: S02083-02 (#1) 14.96 – 16.31 (1.35 ft)
Sample: S02083-03 (#2) 27.91 – 29.25 ft (1.34 ft)

PERSONNEL:
OPERATOR: K. Olson
D Morris/D Curry
WA LICENSE #: 1217
OTHER: D.E. Skoglie
R. Sharp (Opr)
K. Johnson (PIC)
K. Hartelius (HPT)

TIME FROM	TO	*DESCRIPTION OF OPERATIONS/REMARKS*
07:00	08:09	Daily safety meeting conducted. Discussed anticipated activities (07:20). Reroute hydraulic lines for rotary head latching mechanism. Adjust head and obtain measurements for constant (3.35 ft ground level to top of work deck). Reset drive head and align/level drill unit.
08:09	09:15	Hammer will not pump up (fuel). Bleed system (08:20). Drive casing to 6.19 ft bgs. 10.44 – (3.35 + .9). Blows 3/2/2/2/3/3. Tab on operator side came off. Level hydraulic jacks.
09:15	09:40	Add casing 5.0 ft (total 15.44 ft) and Dp 5.0 ft (total 16.06 ft). Set up hammer.
09:40		Drive casing to 11.19 ft bgs. 15.94 – (3.35 + 1.4). Blows 8/14/12/10/9. Secure hammer/disassemble drive head.
10:00	10:08	Add casing 4.0 ft (total 19.44 ft) and Dp 4.0 ft (total 20.06). Set up hammer.
10:08	10:09	Drive casing to 14.96 ft bgs. 19.44 – (3.35 + 1.13). Blows 12/10/8/6. Secure hammer/disassemble drive head.
10:09	10:57	Back pull casing .25 ft. Trip Dp out of bore –hole. Run sampler in boring. Set-up hammer/drive head.
10:57	11:20	Drive sample S02083-02 (#1) 14.96 – 16.31 ft (1.35 ft). Blows 1/1/1 (10:58). Sample in drum @ 11:20.
11:20	11:57	Back-pull and remove casing 4 ft. Trip into the boring with Dp. Add casing 5.0 (total 20.44 ft) and Dp 5.0 (total 21.06 ft).
11:57	12:50	Lunch (11:57 – 12:35) Set-up hammer
12:50	12:59	Drive casing to 16.02 ft bgs. 20.44 – (3.35 + 1.07). Blows 8/4. Secure hammer/disassemble drive head.
12:59	13:13	Add casing 5.0 ft (total 25.44 ft) and Dp 5.01 ft (total 26.07) @ 13:08. Set up hammer.
13:13	13:15	Drive casing to 20.94 ft bgs. 25.44 – (3.35 + 1.15). Blows 10/10/10/12/13. Secure hammer/disassemble head.
12:59	13:35	Add casing 5.0 ft (total 30.44 ft) and Dp 5.0 ft (total 31.07) @ 13:30. Set up hammer.
13:35	13:40	Drive casing to 26.02 ft bgs. 30.44 – (3.35 + 1.07). Blows 14/14/14/14/15. Secure hammer/disassemble head.
13:40	13:52	Add casing 2.0 ft (total 32.44 ft) and Dp 2.0 ft (total 33.07) @ 13:48. Set up hammer.
13:52	14:15	Drive casing to 27.91 ft bgs. 32.44 – (3.35 + 1.18). Blows 20/11. Secure hammer/disassemble head. Trip out.
14:15	14:48	Trip in sampler @ 14:26. Drive sample S02083-03 (27.91 – 29.25). Trip out in drum @ 14:48.
14:48	16:30	Back-pull 2 ft casing. Trip in Dp. Conduct maintenance and documentation. Secure site.

REPORT BY: D.E. Skoglie
TITLE: Field Team Lead
SIGNATURE: David E. Skoglie

REVIEWED BY: MG Gardner
TITLE: Project Manager DATE: 10-8-02
SIGNATURE: MGardner

Duratek Federal Services

Duratek Federal Services, Inc., Northwest Operations

C3830 **SAMPLE FORM**

FAR No. 73 Page 2 of 3

Sample No. 502083-02 Sample Tracking No. 1

Target Depth 15 to 16

(1) 3.35 top of rig floor above ground

(2) 4.48 casing stickup above ground

Csg Total (3) 19.44 - Stickup (2) 4.48 = TD (4) 14.96

Does not include drive head

Backpull stickup (2+5) .25

Sample depth (4) 14.96 to (4+6) 16.31

Blow Count 1.35

	.5 ft	1 ft	~~1.5~~ ft
Start Time 1057	1	1	1
End Time 1058			

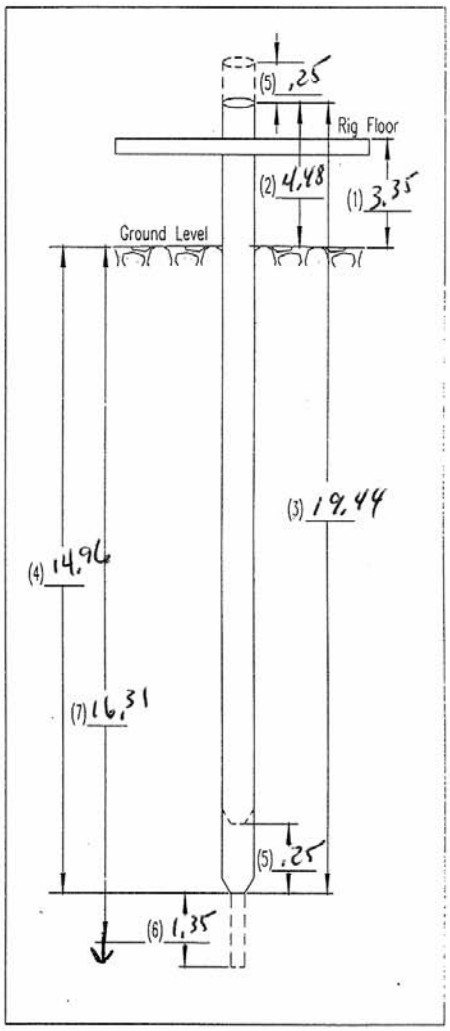
Estimated Recovery: 100%

Remarks:

(1) Sample in drum @ 11:20 hrs.

(2) Sample Moist on Tip (bottom)

1 = Top of rig floor above ground
2 = Stickup of csg above ground 1 + measure from floor to top csg = SU
3 = Total csg length
4 = Depth of csg = Total Depth (TD)
Total csg – SU(2) = TD
5 = Casing back pull
6 = Sampler drive distance
7 = Total depth of driven sample = 4 + 6



PREPARED BY (Please print): D. E. SKOGLIE
TITLE: FTL DATE: 08 20 02
SIGNATURE: Dale Skoglie

REVIEWED BY (Please print): MG GARDNER
TITLE: Mgr DATE: 10-8-02
SIGNATURE: MGGardner

DFSNW-WS-00__

Duratek Federal Services

Duratek Federal Services, Inc., Northwest Operations

C3830 **SAMPLE FORM**

FAR No. 73 Page 3 of 3

Sample No. 502083-03 Sample Tracking No. 2

Target Depth 28 to 29

(1) 3.35 top of rig floor above ground

(2) 4.53 casing stickup above ground

Csg Total (3) 32.44 - Stickup (2) 4.53 = TD (4) 27.91

Does not include drive head

Backpull stickup (2+5) .25

Sample depth (4) 27.91 to (4+6) 29.25

Blow Count 1.34

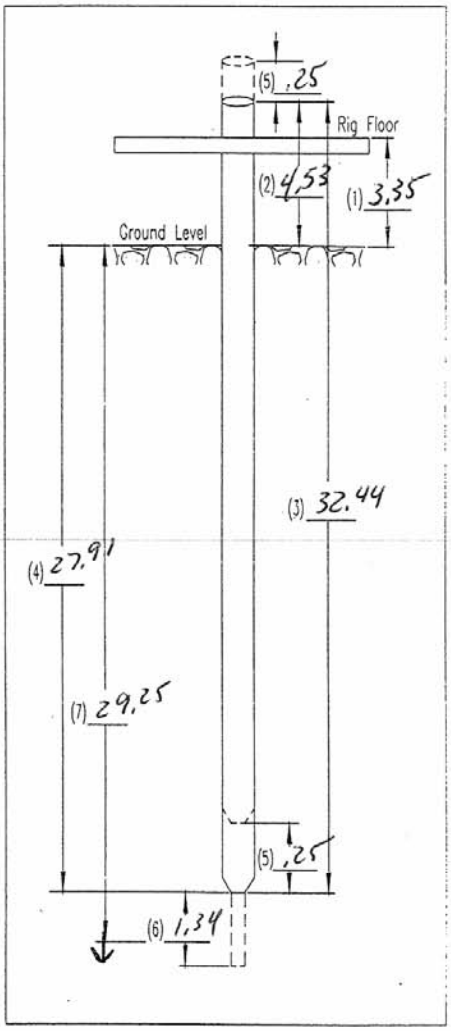
	.5 ft	1 ft	~~1.5~~ ft
Start Time 1428	2	2	1
End Time 1429			

Estimated Recovery: 100%

Remarks:

(1) Sample in drum @ 14:48 hrs.

1 = Top of rig floor above ground
2 = Stickup of csg above ground 1 + measure from floor to top csg = SU
3 = Total csg length
4 = Depth of csg = Total Depth (TD)
Total csg – SU(2) = TD
5 = Casing back pull
6 = Sampler drive distance
7 = Total depth of driven sample = 4 + 6



PREPARED BY (Please print): D.E. SKOGLIE
TITLE: FTL DATE: 8/20/02
SIGNATURE: David E Skoglie

REVIEWED BY (Please print): MG GARDNER
TITLE: MGR DATE:
SIGNATURE: 10-8-02

DFSNW-WS-00__

Duratek Federal Services, Inc., Northwest Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 3

WELL I.D.: C3830	*WELL NUMBER*: N/A	*REPORT NUMBER*: 74	*DATE:* August 21, 2002 Wednesday
CONTRACT NUMBER: 8248-55	*START CARD NO*: S00631	*RIG MODEL/NO*: SIMCO 5000 (Rig 106)	
PURPOSE: Daily safety meeting. Drive casing to a depth of 46.05 ft. Obtain samples S02083-04 and S02083-05.	*REFERENCE*: DFSNW-DOW-006, Rev. 0	*LOCATION*: TX Tank Farm, 200 West	
REFERENCE MEASURING POINT: Steel Plate plus 0.25 ft (ground level)		*TOTAL SHIFT FOOTAGE*: 18.25 ft.	

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
7.0 " OD	NA	CS	Shoe, 7.5 " OD	27.91 ft	46.05 ft

BORING DEPTH: START: 29.25 ft
END: 47.5 ft.

START TIME: 07:00
END TIME: 16:30
CONTRACTOR TIME: 0.5
TOTAL TIME: 9.5

DOCUMENTED DOWNTIME
2 hr – health physics

WEATHER CONDITIONS (373-2716 or 373-2710)
9:30 62F, wind W 3 -6 mph, 58% humidity, 29.269 barometric pressure

CASING SUMMARY

Bottom of 7 " OD casing (start of shift)	= 27.91 ft.
Bottom of 7" OD casing (end of shift)	= 46.05 ft.
Casing (7 in OD) stick up (include bkpull)	= 1.3 ft.
Total casing	= 50.45 ft.

SAMPLE SUMMARY

Sample: S02083-04 (#3) 40.93–42.49 (1.35 ft) 100%
Sample: S02083-05 (#4) 46.05 –47.5 ft (1.45 ft) 100%

PERSONNEL:
OPERATOR: K. Olson
D Morris/D Curry
WA LICENSE #: 1217
OTHER: D.E. Skoglie/S. Worley Snook (Opr)
K. Johnson (PIC)
K. Hartelius (HPT)

TIME FROM	TO	*DESCRIPTION OF OPERATIONS/REMARKS*
07:00	07:18	Daily safety meeting conducted. Discussed anticipated activities. Complete equip inspection.
07:18	07:42	Add casing 5.01 (total 35.45 ft) and Dp 5.01 (36.08 ft). Set hammer.
07:42	07:43	Drive casing to 30.95 ft bgs. 35.45 – (3.35 + .1.15). Blows 8/10/10/2. Secure hammer/disassemble drive head.
07:43	08:00	Add casing 5.0 ft (total 40.45 ft) and Dp 5.0 ft (total 41.08). Set up hammer.
08:00	08:11	Drive casing to 36.1 ft bgs. 40.45 – (3.35 + 1.0). Blows 10/10/13/15/16. Secure hammer/disassemble dr/head.
08:11	08:26	Add casing 5.0 ft (total 45.45 ft) and Dp 5.01 ft (total 46.09). Set up hammer.
08:26	08:30	Drive casing to 40.93 ft bgs. 45.45 – (3.35 + 1.17). Blows 13/15/14/14/10. Secure hammer/remove dr/head.
08:30	09:17	Back pull casing .25 ft. (08:34) Trip Dp out of bore –hole. Run sampler in boring. Set-up hammer/drive head.
09:17	09:40	Drive sample S02083-04 (#3) 40.93 – 42.49 ft (1.56 ft). Blows 1/2/1 (09:18). Sample in drum @ 09:40 hrs.
09:40	10:37	Trip into the boring with Dp. Break 10:00 – 10:22. Add casing 5.0 (total 50.45 ft) and Dp 5.0 (total 51.09 ft).
10:37	10:44	Set-up hammer (10:42). Drive casing to 46.05ft bgs. 50.45 – (3.35 + 1.05). Blows 6/9/8/9/12.
10:44	11:08	Secure hammer/disassemble drive head. Back-pull casing .25 ft. Trip Dp out of boring.
11:08	11:30	Run sampler to bottom.
11:30	12:00	Lunch
12:00	1:30	Back in the farm, drive sample S02083-05 (#4) 46.05- 47.5' (1.45) Blows 2 (12:30) sample in drum (12:45) Tagged Bottom 47.45 ft. bgs. Ran sampler back in hole. HPT had to leave, shut down drilling
1:30	2:15	Lay mast down and conduct mast and component inspection. No deficiencies noted. The mast was set back up and out of farm.
2:15	3:00	Fill out reports leave site.
3:00	4:30	BSE crew discusses daily operations and equipment maintenance.

REPORT BY: D.E. Skoglie/S. Worley
TITLE: Field Team Lead
SIGNATURE: D.E. Skoglie

REVIEWED BY: MG Gardner
TITLE: Project Manager DATE: 10-8-02
SIGNATURE: MGGardner

Duratek Federal Services, Inc., Northwest Operations

C3830 **SAMPLE FORM**

FAR No. 74 Page 2 of 3

Sample No. 502083-04 Sample Tracking No. 3

Target Depth 41 to 42.

(1) 3.35 top of rig floor above ground

(2) 4.52 casing stickup above ground

Csg Total (3) 45.45 - Stickup (2) 4.52 = TD (4) 40.93

Does not include drive head

Backpull stickup (2+5) .25

Sample depth (4) 40.93 to (4+6) 42.49

Blow Count 1.56

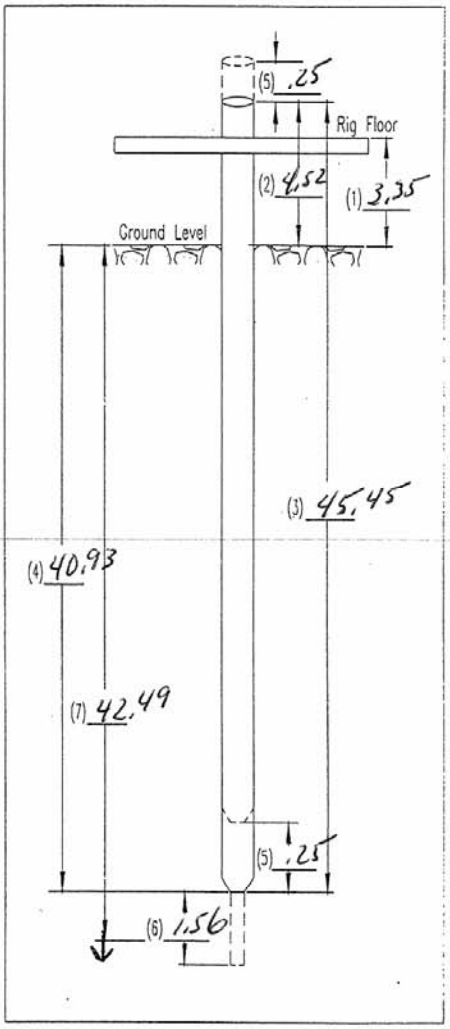
	.5 ft	1 ft	~~1.5~~ ft
Start Time 0917	1	2	1
End Time 0918			

Estimated Recovery: 100%

Remarks:

(1) Sample in drum @ 09:40 hrs.

1 = Top of rig floor above ground
2 = Stickup of csg above ground 1 + measure from floor to top csg = SU
3 = Total csg length
4 = Depth of csg = Total Depth (TD)
Total csg – SU(2) = TD
5 = Casing back pull
6 = Sampler drive distance
7 = Total depth of driven sample = 4 + 6



PREPARED BY (Please print): D.E. SKOGLIE
TITLE: FTL DATE: 08 21 02
SIGNATURE: David E. Skoglie

REVIEWED BY (Please print): MG GARDNER
TITLE: M&R DATE: 10-08-02
SIGNATURE: M G Gardner

DFSNW-WS-00__

Duratek Federal Services

Duratek Federal Services, Inc., Northwest Operations

C3830 **SAMPLE FORM**

FAR No. 74 Page 3 of 3

Sample No. 502083-05 Sample Tracking No. 4

Target Depth 46 to 47

(1) 3.35 top of rig floor above ground

(2) 4.4 casing stickup above ground

Csg Total (3) 50.45 - Stickup (2) 4.4 = TD (4) 46.05

Does not include drive head

Backpull stickup (2+5) .25

Sample depth (4) 46.05 to (4+6) 47.5

Blow Count 1.45

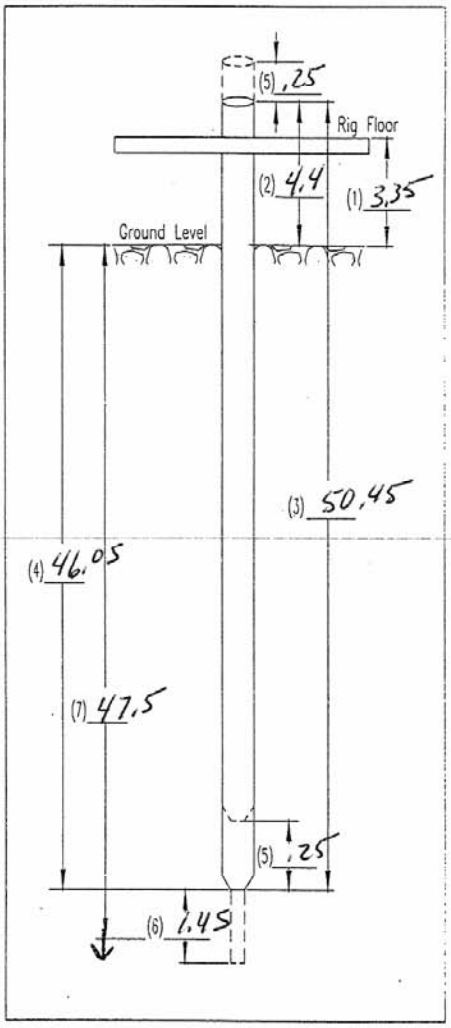
	.5 ft	1 ft	~~1.5~~ ft
Start Time 1229	1	1	1
End Time 1230			

Estimated Recovery: 100%

Remarks:

(1) Sample in drum @ 12:50 hrs.

1 = Top of rig floor above ground
2 = Stickup of csg above ground 1 + measure from floor to top csg = SU
3 = Total csg length
4 = Depth of csg = Total Depth (TD)
Total csg – SU(2) = TD
5 = Casing back pull
6 = Sampler drive distance
7 = Total depth of driven sample = 4 + 6



PREPARED BY (Please print): D.E. SKOGLIE
TITLE: FTL DATE: 082102
SIGNATURE: David E. Skoglie

REVIEWED BY (Please print): MG GARDNER
TITLE: MGR DATE: 10-08-02
SIGNATURE: MGGardner

DFSNW-WS-00__

Duratek Federal Services, Inc., Northwest Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

WELL I.D.: C3830	*WELL NUMBER*: N/A	*REPORT NUMBER*: 75	*DATE*: August 22, 2002 Thursday
CONTRACT NUMBER: 8248-55	*START CARD NO*: S00631	*RIG MODEL/NO*: SIMCO 5000 (Rig 106)	
PURPOSE: Daily safety meeting. Drive casing to a depth of 56.99 ft bgs. Obtain samples S02083-06, S02083-07 and S02083-08.	*REFERENCE*: DFSNW-DOW-006, Rev. 0	*LOCATION*: TX Tank Farm, 200 West	

REFERENCE MEASURING POINT: Steel Plate

TOTAL SHIFT FOOTAGE: 10.87 ft.

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
7.0 " OD	NA	CS	Shoe, 7.5 " OD	46.05 ft	56.99ft

BORING DEPTH:
START: 47.5 ft
END: 58.37 ft

START TIME: 07:00
END TIME: 16:30
CONTRACTOR TIME: 0.5
TOTAL TIME: 9.5

DOCUMENTED DOWNTIME

N/A

WEATHER CONDITIONS (373-2716 or 373-2710)

15:25: Temperature 88 F, Humidity 26%, Barometric pressure 26.62, Wind SW 6 mph

CASING SUMMARY

Bottom of 7 " OD casing (start of shift) = 46.05 ft.
Bottom of 7" OD casing (end of shift) = 56.99
Casing (7 in OD) stick up (end of shift) = 1.11 ft

SAMPLE SUMMARY

Sample: S02083-06 (#5) 47.5 – 49.0 (1.5 ft) 100%
Sample: S02083-07 (#6) 52.98 – 54.36 (1.38 ft) 100%
Sample: S02083-08 (#7) 56.99 – 58.37 (1.38 ft) 100%

PERSONNEL:
OPERATOR: K. Olson
D Morris/D Curry
WA LICENSE #: 1217
OTHER: D.E. Skoglie
R. Sharp/ S. Snook (Opr)
K. Johnson (PIC)
K. Harteilius (HPT)

TIME FROM	TO	*DESCRIPTION OF OPERATIONS/REMARKS*
07:00	07:18	Daily safety meeting conducted. Discussed anticipated activities (07:23). Complete equip main/inspection.
07:18	07:42	Add casing that was removed for mast inspection. Set hammer.
07:43	08:18	Drive sample S02083-06 (#5) 47.5 – 49.0 ft (1.5 ft). Blows 1/2/1 (07:44). Sleeve sample and place cap (1 o-ring and a swipe of well-guard). Sample in drum @ 08:18 hrs. Set-up next sampler.
08:18	08:50	Add casing 5.0 ft (total 55.45 ft) and Dp 5.01 ft (total 56.1 ft). Set up hammer.
08:50	08:11	Drive casing to 50.87 ft bgs. 55.45 – (3.35 + 1.23). Blows 7/11/13/20/15. Secure hammer/disassemble dr/head.
08:11	08:26	Add casing 2.0 ft (total 57.45 ft) and Dp 2.0 ft (total 58.1). Set up hammer.
08:26	09:20	Drive casing to 52.98 ft bgs. 57.45 – (3.35 + 1.12). Blows 15/16. Secure hammer/remove dr/head.
09:20	10:52	Tip is stuck. Break 09:45 – 10:00. Fuel truck in RBA fueling support generator. Repair hydraulic hose (tighten connection).Remove tip with hydraulic jacks. Trip Dp out of boring @ 10:52.
10:52	11:09	Run the sampler in and set-up the drive head.
11:11	12:00	Drive sample S02083-07 (52.98 – 54.36) 1.38 ft. Blows 3/3/2. Sample at the surface @ 11:37. No radiological contamination noted. Sample in drum @ 11:42.
12:00	12:45	Lunch. Mr. Flower fabricated slips for the 7 inch. A welding and cutting permit was prepared and approved. Kutrite was attempted to be installed on the vertical slip bars. The Kutrite will need to be placed in a horizontal access at a later date. A tab was welded on the hammer as a back-up to the cable securement system.
12:45	13:24	Add casing 4.0 ft (total 61.45 ft) and Dp 4.0 ft (total 62.1 ft). Set up hammer.
13:24	13:37	Drive casing to 56.99 ft bgs @13:28. 61.45 – (3.35 + 1.11). Blows 11/28/34/31. Secure hammer/disassemble dr/head. Back pull casing .25
13:37	14:53	Trip out Dp (14:03). Trip in with sampler and set up drive head (14:25). Drive sample S02083-08 (56.99 – 58.37) 1.38 ft. Blows 3/4/2. Trip sampler out on surface @ 14:50 and in drum @ 14:53 hrs.
14:53	16:30	Tag @ 58.29 ft bgs. Run sampler to bottom. Secure site. Pickup Dp from pipeyard.

REPORT BY: D.E. Skoglie
TITLE: Field Team Lead
SIGNATURE: David E. Skoglie

REVIEWED BY: MG Gardner
TITLE: Project Manager DATE: 10-08-02
SIGNATURE: M Gardner

Duratek Federal Services, Inc., Northwest Operations

C3830 **SAMPLE FORM**

FAR No. 75 Page 2 of 4

Sample No. 502083-06 Sample Tracking No. 5

Target Depth 48 to 49

(1) 3.35 top of rig floor above ground

(2) 3.0 casing stickup above ground

Csg Total (3) 50.45 - Stickup (2) 3.0 = TD (4) 47.45

Does not include drive head

Backpull stickup (2+5) .25

Sample depth (4) 47.45 to (4+6) 49.0

Blow Count

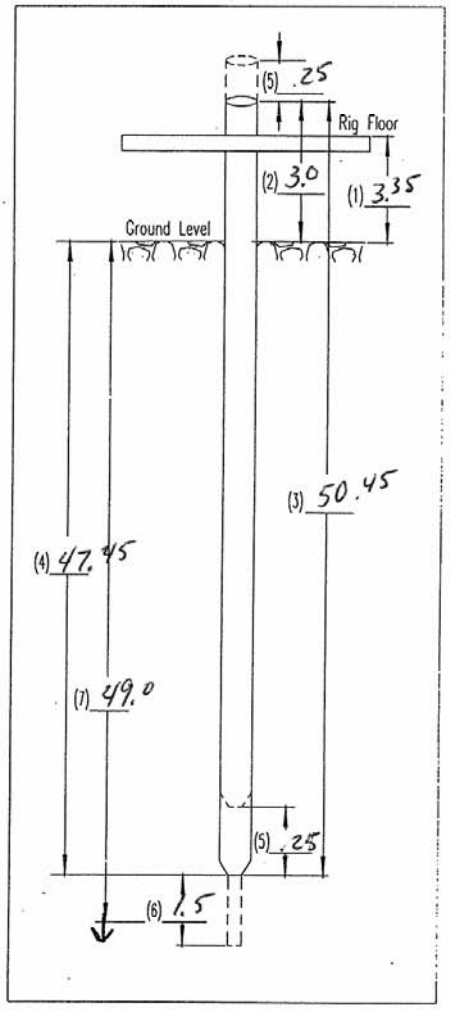
	.5 ft	1 ft	1.5 ft
Start Time	1	2	1
End Time			

Estimated Recovery: 100%

Remarks:
(1) DTB TAG recorded @ 47.45 (back to back sample).

(2) Sample in Drum @ 0818 hrs

1 = Top of rig floor above ground
2 = Stickup of csg above ground 1 + measure from floor to top csg = SU
3 = Total csg length
4 = Depth of csg = Total Depth (TD)
Total csg – SU(2) = TD
5 = Casing back pull
6 = Sampler drive distance
7 = Total depth of driven sample = 4 + 6



PREPARED BY (Please print): D.E. Skoglie
TITLE: FTL DATE: 08/22/02
SIGNATURE: David E. Skoglie

REVIEWED BY (Please print): MG GARDNER
TITLE: MGR DATE:
SIGNATURE: MGBarnes 10-8-02

DFSNW-WS-00__

Duratek Federal Services, Inc., Northwest Operations

C3830 **SAMPLE FORM**

FAR No. 75 Page 3 of 4

Sample No. 5020 83-07 Sample Tracking No. 6

Target Depth 53 to 54

(1) 3.35 top of rig floor above ground

(2) 4.47 casing stickup above ground

Csg Total (3) 57.45 - Stickup (2) 4.47 = TD (4) 52.98

Does not include drive head

Backpull stickup (2+5) .25

Sample depth (4) 52.98 to (4+6) 54.36

Blow Count 1,38

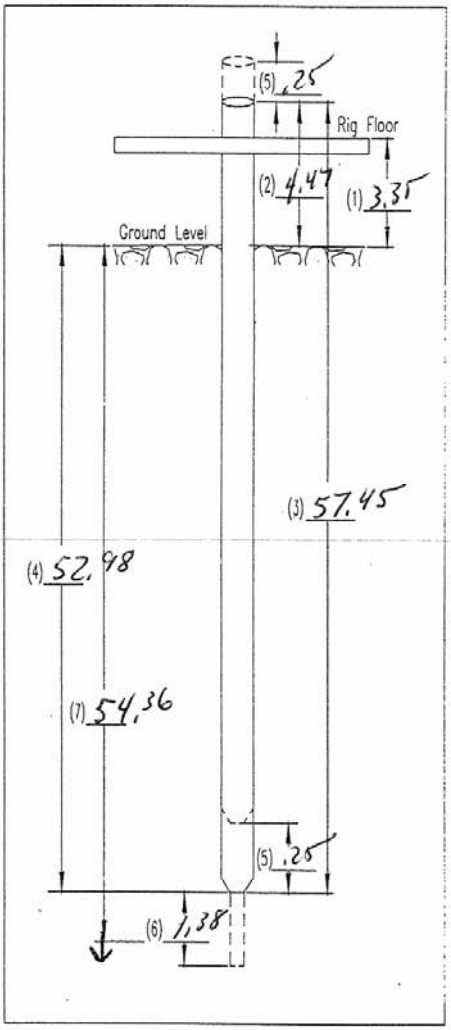
	.5 ft	1 ft	1.5 ft
Start Time 11 11	3	3	2
End Time 11 12			

Estimated Recovery: 100%

Remarks:

(1) Sample in drum @ 11:42 hrs

1 = Top of rig floor above ground
2 = Stickup of csg above ground 1 + measure from floor to top csg = SU
3 = Total csg length
4 = Depth of csg = Total Depth (TD)
Total csg – SU(2) = TD
5 = Casing back pull
6 = Sampler drive distance
7 = Total depth of driven sample = 4 + 6



PREPARED BY (Please print): D.E. SKOGLIE
TITLE: FTL DATE: 08 22 02
SIGNATURE: David E Skoglie

REVIEWED BY (Please print): MG GARDNER
TITLE: NBR DATE:
SIGNATURE: MG Gardner 10-08-02

DFSNW-WS-00__

Duratek Federal Services

Duratek Federal Services, Inc., Northwest Operations

C3830 **SAMPLE FORM**

FAR No. 75 Page 4 of 4

Sample No. S02083-08 Sample Tracking No. 7

Target Depth 57 to 58

(1) 3.35 top of rig floor above ground

(2) 4.46 casing stickup above ground

Csg Total (3) 61.45 - Stickup (2) 4.46 = TD (4) 56.99

Does not include drive head

Backpull stickup (2+5) .25

Sample depth (4) 56.99 to (4+6) 58.37

Blow Count 1.38

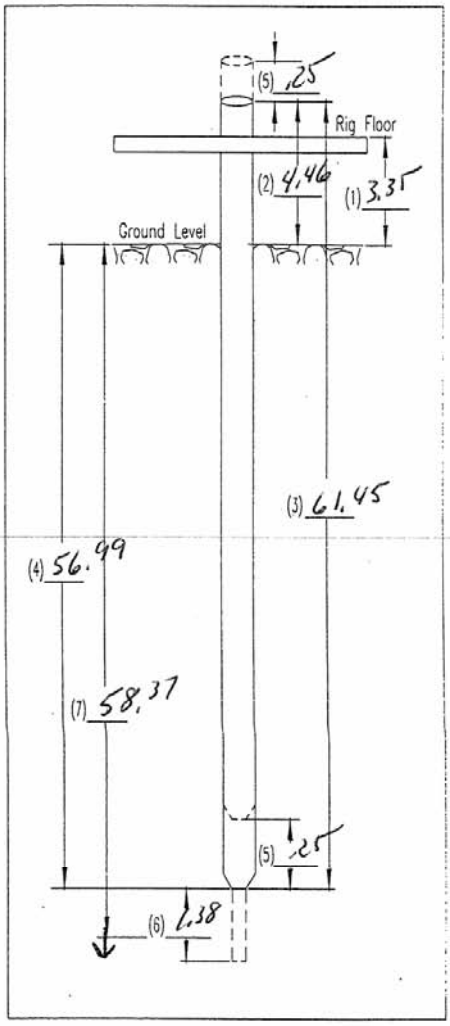
	.5 ft	1 ft	~~1.5 ft~~
Start Time 1425	3	4	2
End Time 1426			

Estimated Recovery: 100%

Remarks:

@ sample in drum @ 14:53 hrs.

1 = Top of rig floor above ground
2 = Stickup of csg above ground 1 + measure from floor to top csg = SU
3 = Total csg length
4 = Depth of csg = Total Depth (TD)
Total csg – SU(2) = TD
5 = Casing back pull
6 = Sampler drive distance
7 = Total depth of driven sample = 4 + 6



PREPARED BY (Please print): D.E. SKOGLIE
TITLE: FTL DATE: 08 22 02
SIGNATURE: David E. Skoglie

REVIEWED BY (Please print): MG GARDNER
TITLE: MGR DATE:
SIGNATURE: MGGardner 10-8-02

DFSNW-WS-00__

Duratek Federal Services, Inc., Northwest Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 2

WELL I.D.: C3830	*WELL NUMBER*: N/A	*REPORT NUMBER*: 76	*DATE*: August 23, 2002 Friday
CONTRACT NUMBER: 8248-55	*START CARD NO*: S00631	*RIG MODEL/NO*: SIMCO 5000 (Rig 106)	
PURPOSE: Daily and weekly safety meeting. Drive casing depth is 56.99 ft bgs. Obtain samples S02083-09.	*REFERENCE*: DFSNW-DOW-006, Rev. 0	*LOCATION*: TX Tank Farm, 200 West	
REFERENCE MEASURING POINT: Steel Plate plus 0.25 ft (ground level)		*TOTAL SHIFT FOOTAGE*: 1.33 ft.	

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
7.0 " OD	NA	CS	Shoe, 7.5 " OD	56.99 ft	56.99 ft

BORING DEPTH: START: 58.37 ft
END: 59.7 ft

START TIME: 07:00
END TIME: 15:30
CONTRACTOR TIME: 0.5
TOTAL TIME: 8.5

DOCUMENTED DOWNTIME

N/A

WEATHER CONDITIONS (373-2716 or 373-2710)

08:07: Temperature 66 F, Humidity 74%, Barometric pressure 29.33, Wind NW 3 mph

CASING SUMMARY

Bottom of 7 " OD casing (start of shift)	= 56.99 ft.
Bottom of 7" OD casing (end of shift)	= 56.99 ft.
Casing (7 in OD) stick up (include bkpull)	= 56.99 ft
Total casing	= 60.45 ft.

SAMPLE SUMMARY

Sample: S02083-09 (#8) 58.29 – 59.7 (1.41 ft) 100%

PERSONNEL:
OPERATOR: K. Olson
D Morris/D Curry
WA LICENSE #: 1217
OTHER: D.E. Skoglie
R. Sharp/ S. Snook (Opr)
K. Johnson (PIC)
K. Hartelius (HPT)

TIME FROM	TO	*DESCRIPTION OF OPERATIONS/REMARKS*
07:00	08:49	Daily and weekly safety meeting conducted. Discussed anticipated activities. Complete equipment maintenance and inspection, no deficiencies noted. Also, inspect lower chain drive due to hearing the chain travel around the sprockets. A loose set screw was tightened. Alternate HPT arrives with instruments.
08:49	09:25	Set-up the hammer. Drive sample S02083-09 (#8) 58.29 – 59.7 ft. (1.41 ft) 08:53. Blows 2/2/2 (07:44). Sleeve sample and place cap (1 O-ring and a swipe of Well Guard lubricant). Sample in drum @ 09:25 hrs.
09:25	10:22	Back-pull casing (4 and 2 ft sections from string). Run Dp to bottom of casing.
10:22	11:45	Add casing 5.0 ft (total 60.45 ft.) and Dp (total 61.1 ft.). Casing will not push down with head (6 ft open hole). Lower hammer onto casing. The casing lowered ~ 1 ft. Dry fire the hammer. The casing went to bottom. A stop tab was knocked off the lower hammer with the rotary head frame.
11:45		Two people stayed in the zone to repair the tab while the others ate lunch. Once lunch was over, the third BSE ate lunch while the other two conducted a rig inspection due to the tab being knocked off.
		The hammer was lifted, however it would not lower into the secured position. A brace was used to lift the hammer from one side. The hammer was lowered. Further inspection revealed the hammer bracing in good shape. The square corner of the mast bracing was ground down to allow the hammer arms to slide past the end of the mast bracing.
		The upper and lower mast components were inspected. Set screws in the upper sprocket were tightened.
	15:30	Area secured. Documentation completed. Fuel obtained.

REPORT BY: D.E. Skoglie
TITLE: Field Team Lead
SIGNATURE: David E. Skoglie

REVIEWED BY: MG Gardner
TITLE: Project Manager DATE: 10-08-02
SIGNATURE: MGGardner

Duratek Federal Services

Duratek Federal Services, Inc., Northwest Operations

C3830 **SAMPLE FORM**

FAR No. 76 Page 2 of 2

Sample No. S02083-09 Sample Tracking No. 8

Target Depth 59 to 60

(1) 3.35 top of rig floor above ground

(2) 4.46 casing stickup above ground

Csg Total (3) 61.45 - Stickup (2) 4.46 = TD (4) 56.99

Does not include drive head

Backpull stickup (2+5) .25

Sample depth (4) 58.29 to (4+6) 59.7

Blow Count 1.41

	.5 ft	1 ft	~~1.5~~ ft
Start Time 0853	2	2	2
End Time 0853			

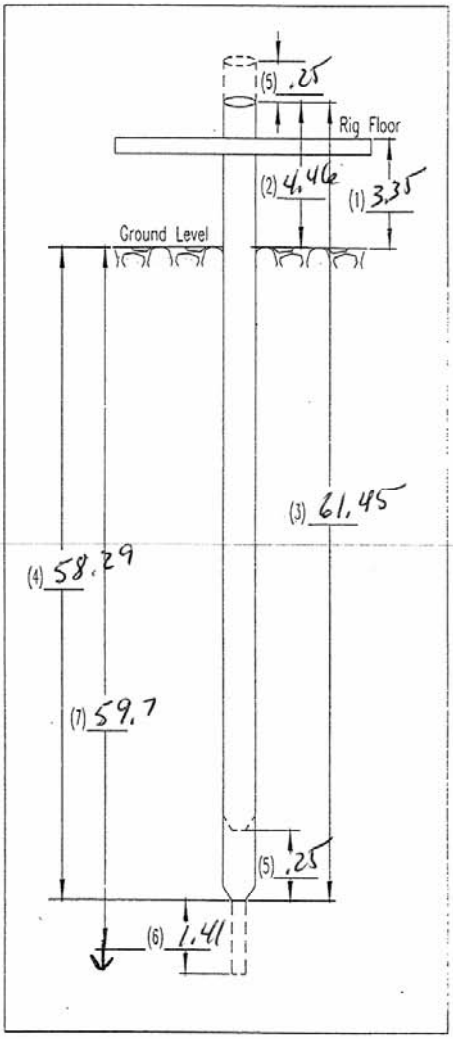
Estimated Recovery: 100%

Remarks:

(1) SAMPLE IN drum @ 0925 hrs.

(2) DTB TAG 58.29 (BACK TO BACK sample)

1 = Top of rig floor above ground
2 = Stickup of csg above ground 1 + measure from floor to top csg = SU
3 = Total csg length
4 = Depth of csg = Total Depth (TD)
Total csg – SU(2) = TD
5 = Casing back pull
6 = Sampler drive distance
7 = Total depth of driven sample = 4 + 6



PREPARED BY (Please print): D.E. SKOGLIE
TITLE: FTL DATE: 08 23 02
SIGNATURE: David E. Skoglie

REVIEWED BY (Please print): MG GARDNER
TITLE: MGR DATE:
SIGNATURE: MG Gardner 10-08-02

DFSNW-WS-00__

Duratek Federal Services, Inc., Northwest Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 2

WELL I.D.: C3830	*WELL NUMBER*: N/A	*REPORT NUMBER*: 77	*DATE*: August 26, 2002 Monday
CONTRACT NUMBER: 8248-55	*START CARD NO*: S00631	*RIG MODEL/NO*: SIMCO 5000 (Rig 106)	
PURPOSE: Daily safety meeting. Casing is drove to a depth of 71.95 ft bgs. Obtain sample S02083-10.	*REFERENCE*: DFSNW-DOW-006, Rev. 0	*LOCATION*: TX Tank Farm, 200 West	
REFERENCE MEASURING POINT: Steel Plate plus 0.25 ft (ground level)		*TOTAL SHIFT FOOTAGE*: 12.25 ft.	

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
7.0 " OD	NA	CS	Shoe, 7.5 " OD	56.99 ft	71.95ft

BORING DEPTH: START: 59.7 ft
END: 71.95 ft

START TIME: 07:00
END TIME: 16:30
CONTRACTOR TIME: 0.5
TOTAL TIME: 9.5

DOCUMENTED DOWNTIME

N/A

WEATHER CONDITIONS (373-2716 or 373-2710)

08:46: Temperature 74F, Humidity 48%, Barometric pressure 29.41, Wind NW 9 with gusts to 16 mph

CASING SUMMARY

Bottom of 7 " OD casing (start of shift)	= 56.99 ft.
Bottom of 7" OD casing (end of shift)	= 71.95 ft
Casing (7 in OD) stick up (include bkpull)	= 1.14 ft
Total casing	= 76.45 ft

SAMPLE SUMMARY

Sample: S02083-10 (#9) 66.06 – 67.46 (1.4 ft) 100%

PERSONNEL:
OPERATOR: K. Olson
D Morris/D Curry
WA LICENSE #: 1217
OTHER: D.E. Skoglie/K. Flower
S. Snook (Opr)
K. Johnson (PIC)
K. Harteilius (HPT)

TIME FROM	TO	*DESCRIPTION OF OPERATIONS/REMARKS*
07:00	10:00	Daily safety meeting conducted (07:17). Discussed anticipated activities. Complete equipment maintenance and inspection, no deficiencies noted. Cut out the center of the lower stop (installed last Friday) with the port-a-band. Welding/cutting permit in place. Weld hammer stop arm (upper mast), spacer on rotary head (alignment) and lower mast chain guard.
10:00	10:28	Add 2 ft casing and back-pull casing to place casing joint in the wrenches. Add casing 5.0 ft (65.45) and Dp 5.01 (66.11). Set-up hammer.
10:28	10:34	Drive casing to 61.08 ft bgs. 65.45 – (3.35 + 1.02). Blows 13/15/12/19. Secure hammer and disassemble drive head assembly.
10:34	10:48	Add casing 5.0 ft (70.45) and Dp 5.0 (71.11). Set-up hammer.
10:48	11:04	Drive casing to 66.06 ft bgs. 70.45 – (3.35 + 1.04) 10:52. Blows 21/30/39/38/38. Secure hammer and disassemble drive head assembly.
11:04	11:40	Back-pull casing .25 ft (11:10). Trip Dp out of boring 11:40hrs.
11:40	12:16	Lunch
12:16	13:18	Trip sampler in boring. Set-up drive head and hammer. Drive sample (66.06 – 67.46) @ 12:50 – 12:51. Blows 2/2/2. The sampler was pulled form the boring and landed on the deck @ 13:12. The sample was placed in the drum @ 13:18.
13:18	13:42	The Dp was tripped into the boring.
13:42	13:56	Add casing 6.0 ft (76.45) and Dp 6.0 (77.11). A 4 ft and 2 ft casing were added together. Set-up hammer.
13:56	13:59	Drive casing to 71.95 ft bgs. 76.45 – (3.35 + 1.15). Blows 8/27/22/23/25/43. Casing driving was stopped after 2 ft to tighten a casing section (due to adding two sections).
13:59	14:14	Back-pull casing .25 ft. Secure hammer and disassemble drive head.
14:14	14:29	Break
14:29	15:38	Trip Dp out of boring. Pick-up a sampler and run to bottom of the boring.
15:38	16:30	Fuel equipment. Secure site. Complete documentation.

REPORT BY: D.E. Skoglie
TITLE: Field Team Lead
SIGNATURE: David E. Skoglie

REVIEWED BY: MG Gardner
TITLE: Project Manager DATE: 10-08-02
SIGNATURE: MGGardner

Duratek Federal Services, Inc., Northwest Operations

C3830 **SAMPLE FORM**

FAR No. 77 Page 2 of 2

Sample No. S02083-10 Sample Tracking No. 9

Target Depth 66 to 67

(1) 3.35 top of rig floor above ground

(2) 4.39 casing stickup above ground

Csg Total (3) 70.45 - Stickup (2) 4.39 = TD (4) 66.06

Does not include drive head

Backpull stickup (2+5) .25

Sample depth (4) 66.06 to (4+6) 67.46

Blow Count 1.4

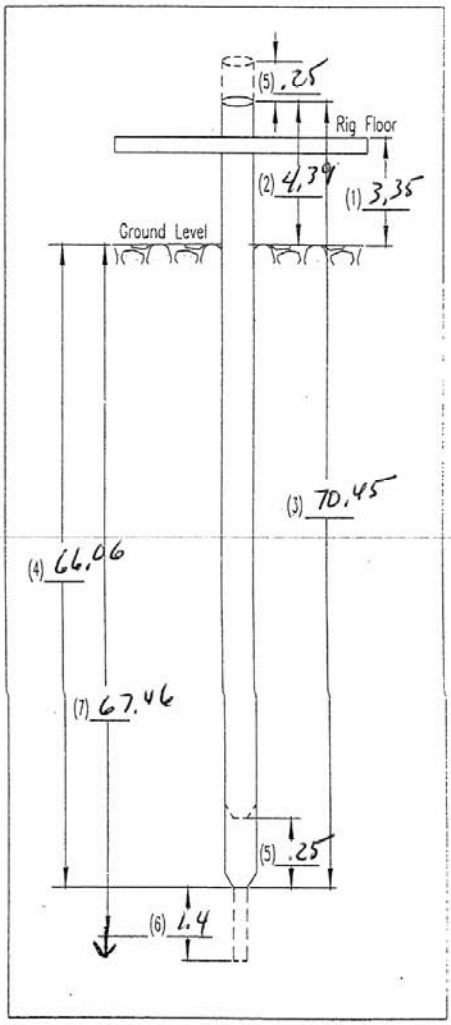
	.5 ft	1 ft	~~1.5~~ ft
Start Time 12 50	2	2	2
End Time 1251			

Estimated Recovery: 100%

Remarks:

(1) Sample in drum @ 1318 hrs.

1 = Top of rig floor above ground
2 = Stickup of csg above ground 1 + measure from floor to top csg = SU
3 = Total csg length
4 = Depth of csg = Total Depth (TD)
Total csg – SU(2) = TD
5 = Casing back pull
6 = Sampler drive distance
7 = Total depth of driven sample = 4 + 6



PREPARED BY (Please print): D. E. SKOGLIE
TITLE: FTL DATE: 08 26 02
SIGNATURE: David E Skoglie

REVIEWED BY (Please print): MG GARDNER
TITLE: MBR DATE:
SIGNATURE: MG Gardner 10-08-02

DFSNW-WS-00__

Duratek Federal Services, Inc., Northwest Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 3

WELL I.D.: C3830	*WELL NUMBER*: N/A	*REPORT NUMBER*: 78	*DATE*: August 27, 2002 Tuesday
CONTRACT NUMBER: 8248-55	*START CARD NO*: S00631	*RIG MODEL/NO*: SIMCO 5000 (Rig 106)	
PURPOSE: Daily safety meeting. Casing is drove to a depth of 80.91 ft bgs. Obtain sample S02083-11 and S02083-12.	*REFERENCE*: DFSNW-DOW-006, Rev. 0	*LOCATION*: TX Tank Farm, 200 West	
REFERENCE MEASURING POINT: Steel Plate plus 0.25 ft (ground level)	*TOTAL SHIFT FOOTAGE*: 8.96 ft.		

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
7.0 " OD	NA	CS	Shoe, 7.5 " OD	71.95 ft	80.91 ft

BORING DEPTH: START: 71.95 ft
END: 80.91 ft

START TIME: 07:00
END TIME: 16:30
CONTRACTOR TIME: 0.5
TOTAL TIME: 9.5

DOCUMENTED DOWNTIME

N/A

WEATHER CONDITIONS (373-2716 or 373-2710)

10:00: Temperature 77F, Humidity 47%, Barometric pressure 29.39, Wind N5 with gusts to 11

CASING SUMMARY

Bottom of 7 " OD casing (start of shift) =	71.95 ft.
Bottom of 7" OD casing (end of shift) =	80.91 ft
Casing (7 in OD) stick up (include bkpull) =	1.45 ft
Total casing =	85.46 ft.

SAMPLE SUMMARY

Sample: S02083-11 (#10) 71.95 – 73.3 (1.35 ft) 100%
Sample: S02083-12 (#11) 76.98 –78.35(1.37 ft) 100%

PERSONNEL:
OPERATOR: K. Olson
D Morris/D Curry
WA LICENSE #: 1217
OTHER: D.E. Skoglie/K. Flower
S. Snook/R. Sharp (Opr)
K. Johnson (PIC)
K. Hartelius (HPT)

TIME FROM	TO	*DESCRIPTION OF OPERATIONS/REMARKS*
07:00	07:37	Daily safety meeting conducted (07:17). Discussed anticipated activities. Complete equipment maintenance and inspection, no deficiencies noted.
07:37	08:35	Sampler sitting on bottom. Set-up drive head and hammer. Drive sample S02083-11 (71.95 – 73.3) @ 07:37 – 07:38. Blows 3/3/2. The sampler was pulled from the boring and landed on the deck @ 08:08. The sample was placed in the drum @ 08:10 hrs. Trip Dp/tip into casing.
08:35	08:46	Add casing 5.01 (total 81.46 ft) and Dp 5.01 (total 82.12 ft). Set-up hammer.
08:46	09:00	Drive casing to 76.98 ft bgs. 81.46 – (3.35 + 1.13). Blows 8/31/35/36/38. Secure hammer and disassemble drive head assembly.
09:00	10:18	Back-pull casing .25 ft (09:07). Tip is stuck, release by jacking out (09:25). Trip Dp out of boring. The fuel line to hammer is leaking (hammer tank is full). Shut down supply pump. No fuel to ground, absorbed with pads (on the drill deck) 10:02 hrs. Break (10:02 – 10:18).
10:18	11:45	Trip sampler in boring. Set-up drive head and hammer. Drive sample S02083-12 (76.98 – 78.35) @ 11:00 – 11:01. Blows 3/4/3. The sampler was pulled form the boring and landed on the deck @ 11:30. The sample was placed in the drum @ 11:35.
11:45	12:20	Lunch
12:20	12:54	The Dp/tip was tripped into the boring.
12:54	13:14	Add casing 4.0 ft (total 85.46) and Dp 4.0 (86.12). Set-up the hammer.
13:14	14:15	Drive casing to 80.91 ft bgs. 85.46 – (3.35 + 1.2). Blows 12/22/36/38. Back-pull casing .25 ft. Trip out inner string.
14:15	14:45	Break (14:45). Run sampler in boring. Crew exits TX Tank Farm (15:48).
15:48	16:30	Secure site and complete documentation.

REPORT BY: DE Skoglie
TITLE: Field Team Lead
SIGNATURE: David E. Skoglie

REVIEWED BY: MG Gardner
TITLE: Project Manager DATE: 10-08-02
SIGNATURE: MG Gardner

Duratek Federal Services, Inc., Northwest Operations

C3830 **SAMPLE FORM**

FAR No. 78 Page 2 of 3

Sample No. S02083-11 Sample Tracking No. 10

Target Depth 72 to 73

(1) 3.35 top of rig floor above ground

(2) 4.5 casing stickup above ground

Csg Total (3) 76.45 - Stickup (2) 4.5 = TD (4) 71.95

Does not include drive head

Backpull stickup (2+5) .25

Sample depth (4) 71.95 to (4+6) 73.3

Blow Count 1.35

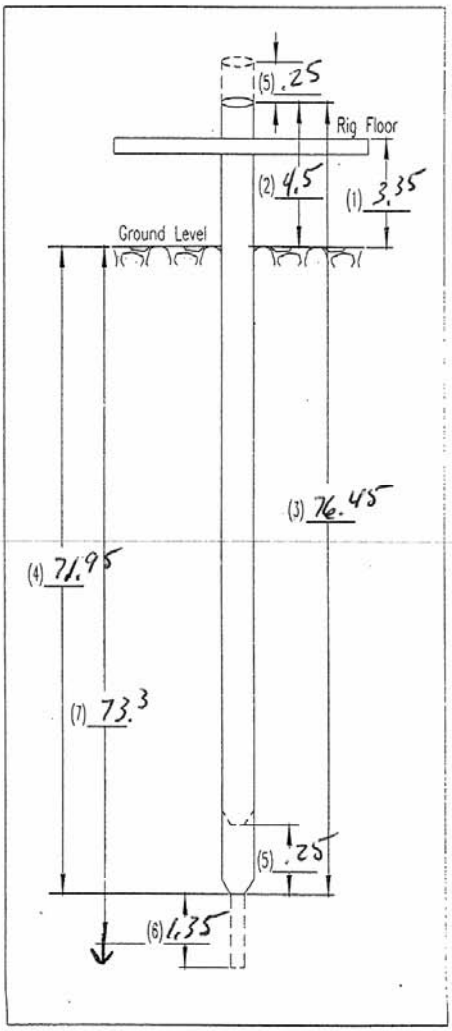
	.5 ft	1 ft	~~1.5~~ ft
Start Time 0737	3	3	2
End Time 0738			

Estimated Recovery: 100%

Remarks:

(1) Sample in drum @ 0810 hrs.

1 = Top of rig floor above ground
2 = Stickup of csg above ground 1 + measure from floor to top csg = SU
3 = Total csg length
4 = Depth of csg = Total Depth (TD)
Total csg – SU(2) = TD
5 = Casing back pull
6 = Sampler drive distance
7 = Total depth of driven sample = 4 + 6



PREPARED BY (Please print): D.E. SKOGLIE
TITLE: FTL DATE: 08/27/02
SIGNATURE: David E. Skoglie

REVIEWED BY (Please print): MG GARDNER
TITLE: NBR DATE:
SIGNATURE: 10-08-02

DFSNW-WS-00__

Duratek Federal Services

Duratek Federal Services, Inc., Northwest Operations

C3830 **SAMPLE FORM**

FAR No. 78 Page 3 of 3

Sample No. S02083-12 Sample Tracking No. 11

Target Depth 77 to 78

(1) 3.35 top of rig floor above ground

(2) 4.48 casing stickup above ground

Csg Total (3) 81.46 - Stickup (2) 4.48 = TD (4) 76.98

Does not include drive head

Backpull stickup (2+5) .25

Sample depth (4) 76.98 to (4+6) 78.35

Blow Count 1,37

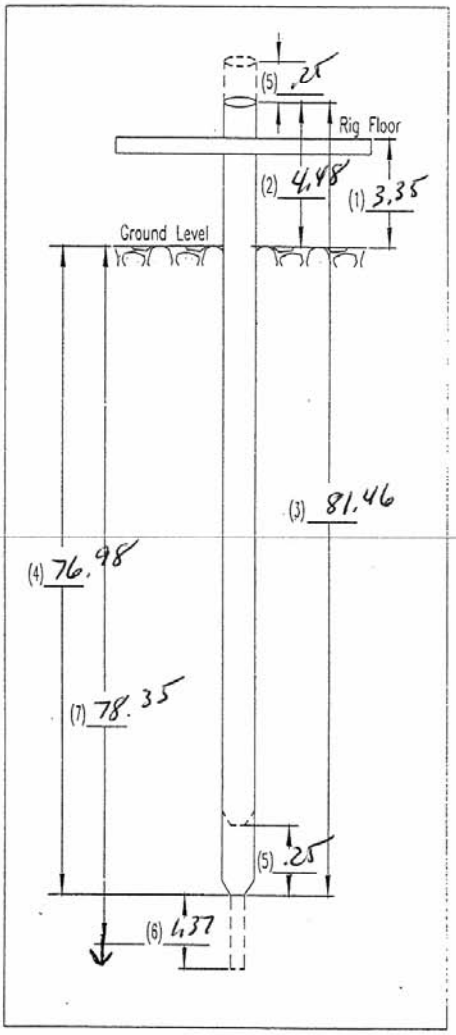
	.5 ft	1 ft	~~1.5~~ ft
Start Time 1100	3	4	3
End Time 1101			

Estimated Recovery: 100%

Remarks:

(1) Sample in drum @ 11:35 hrs.

1 = Top of rig floor above ground
2 = Stickup of csg above ground 1 + measure from floor to top csg = SU
3 = Total csg length
4 = Depth of csg = Total Depth (TD)
Total csg – SU(2) = TD
5 = Casing back pull
6 = Sampler drive distance
7 = Total depth of driven sample = 4 + 6



PREPARED BY (Please print): D.E. SKOGLIE
TITLE: FTL DATE: 08 27 02
SIGNATURE: David E Skoglie

REVIEWED BY (Please print): MG GARDNER
TITLE: MGR DATE:
SIGNATURE: 10-08-02

DFSNW-WS-00__

Duratek Federal Services

Duratek Federal Services, Inc., Northwest Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 3

WELL I.D.: C3830	*WELL NUMBER*: N/A	*REPORT NUMBER*: 79	*DATE:* August 28, 2002 Wednesday
CONTRACT NUMBER: 8248-55	*START CARD NO*: S00631	*RIG MODEL/NO*: SIMCO 5000 (Rig 106)	
PURPOSE: Daily safety meeting. Casing is drove to a depth of 86.11 ft bgs. Obtain sample S02083-13 and S02083-14.	*REFERENCE*: DFSNW-DOW-006, Rev. 0	*LOCATION*: TX Tank Farm, 200 West	
REFERENCE MEASURING POINT: Steel Plate plus 0.25 ft (ground surface)	*TOTAL SHIFT FOOTAGE*: 6.5 ft.		

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
7.0 " OD	NA	CS	Shoe, 7.5 " OD	80.91 ft	86.11 ft

BORING DEPTH:
START: 80.91 ft
END: 87.41 ft

START TIME: 07:00
END TIME: 16:30
CONTRACTOR TIME: 0.5
TOTAL TIME: 9.5

DOCUMENTED DOWNTIME
HPT – 1.25 hrs.

WEATHER CONDITIONS (373-2716 or 373-2710)

10:00: Temperature 74F, Humidity 51%, Barometric pressure 29.25, Wind N @ 6 mph

CASING SUMMARY

Bottom of 7 " OD casing (start of shift) =	71.95 ft.
Bottom of 7" OD casing (end of shift) =	80.91 ft
Casing (7 in OD) stick up (include bkpull) =	1.25 ft
Total casing =	86.11 ft

SAMPLE SUMMARY

Sample: S02083-13 (#12) 80.91 –82.21(1.3 ft) 90%
Sample: S02083-14 (#13) 86.11 –87.41(1.3 ft) 100%

PERSONNEL:
OPERATOR: K. Olson
D Morris/D Curry
WA LICENSE #: 1217
OTHER: DE Gostovich
S. Snook/R. Sharp (Opr)
K. Johnson (PIC)
?? (HPT)
K. Flower

TIME FROM	TO	*DESCRIPTION OF OPERATIONS/REMARKS*
07:00	08:15	Daily safety meeting conducted (07:17). Discussed anticipated activities. Complete equipment maintenance and inspection, no deficiencies noted. HPT (alternate) arrives 08:15.
08:15	09:00	Sampler sitting on bottom. Set-up drive head and hammer. Drive sample S02083-13 (80.91 – 82.21) @ 08:20 – 08:21. Blows 4/4/3. The sampler was pulled from the boring and landed on the deck @ 08:46. The sample was placed in the drum @ 08:55 hrs.
09:00		Remove 4 ft section of casing. Trip Dp/tip into boring (11:15).
		Add casing 5.0 (total 86.46 ft) and Dp 5.0 (total 87.12 ft). Set-up hammer.
08:46		Drive casing to 81.91 ft bgs. 86.46 – (3.35 + 1.2). Blows (not recorded). Secure hammer and disassemble drive head assembly.
		Add casing 4.0 (total 90.46 ft) and Dp 4.0 (total 91.12 ft). Set-up hammer.
	10:30	Drive casing to 86.11 ft bgs. 90.46 – (3.35 + 1.0). Blows (not recorded). Secure hammer and disassemble drive head assembly (10:30 hrs.). Back-pull casing .25 ft.
11:15	11:45	Lunch
11:45	13:30	HPT arrives @ 12:45. Remove Dp from boring.
13:30	14:40	Trip sampler in boring. Set-up drive head and hammer. Drive sample S02083-14 (86.11 – 87.41). Blows 4/3/3. The sampler was pulled form the boring and landed on the deck @ 14:28. The sample was placed in the drum @ 14:40.
14:40	16:30	Secure site. Complete documentation.

REPORT BY: DE Gostovich
TITLE: Field Team Lead
SIGNATURE: DE Gostovich for

REVIEWED BY: MG Gardner
TITLE: Project Manager DATE: 11-27-02
SIGNATURE: MGGardner

Duratek | **Duratek Federal Services, Inc., Northwest Operations**

C3830 **SAMPLE FORM**

FAR No. 79 Page 2 of 3

Sample No. 502083-13 Sample Tracking No. 12

Target Depth 81 to 82

(1) 3.35 top of rig floor above ground

(2) 4.55 casing stickup above ground

Csg Total (3) 85.46 - Stickup (2) 4.55 = TD (4) 80.91
Does not include drive head

Backpull stickup (2+5) .25

Sample depth (4) 80.91 to (4+6) 82.21

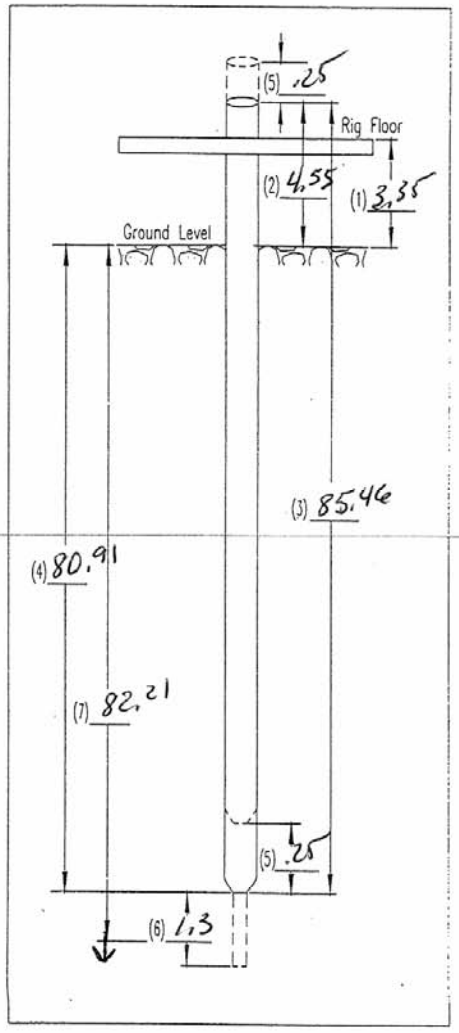
Blow Count 1.3

	.5 ft	1 ft	~~1.5~~ ft
Start Time 0820	4	4	3
End Time 0822			

Estimated Recovery: 90%

Remarks:
(1) sample in drum @ 0855 hrs.

1 = Top of rig floor above ground
2 = Stickup of csg above ground 1 + measure from floor to top csg = SU
3 = Total csg length
4 = Depth of csg = Total Depth (TD)
Total csg – SU(2) = TD
5 = Casing back pull
6 = Sampler drive distance
7 = Total depth of driven sample = 4 + 6



PREPARED BY (Please print): D.E. SKOGLIE
TITLE: FTL DATE: 08 28 02
SIGNATURE: David E Skoglie

REVIEWED BY (Please print): MG GARDNER
TITLE: MGR DATE: 11-27-02
SIGNATURE: MGGardner

DFSNW-WS-00__

Duratek Federal Services, Inc., Northwest Operations

C3830 **SAMPLE FORM**

FAR No. 79 Page 3 of 3

Sample No. 502083-14 Sample Tracking No. 13

Target Depth 86 to 87

(1) 3.35 top of rig floor above ground

(2) 4.35 casing stickup above ground

Csg Total (3) 90.46 - Stickup (2) 4.35 = TD (4) 86.11

Does not include drive head

Backpull stickup (2+5) .25

Sample depth (4) 86.11 to (4+6) 87.41

Blow Count 1.3

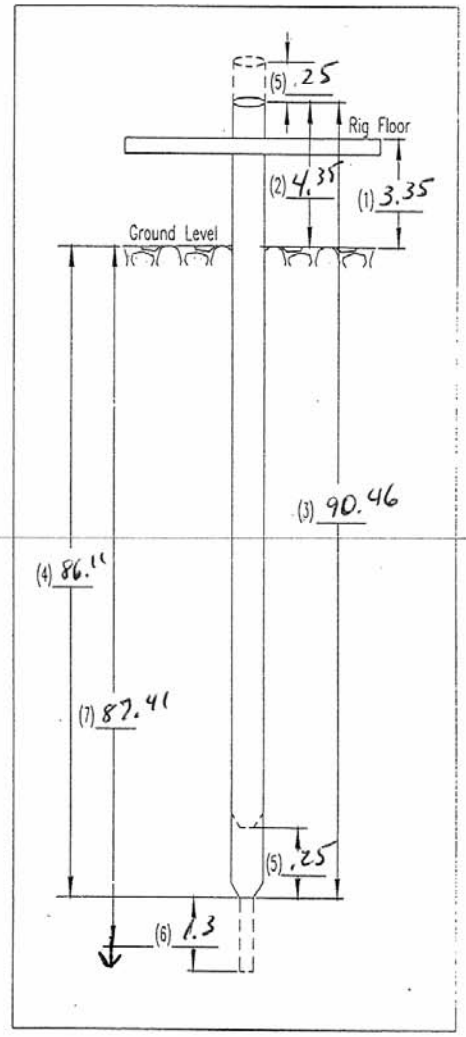
	.5 ft	1 ft	~~1.5~~ ft
Start Time	4	3	3
End Time			

Estimated Recovery: 100%

Remarks:

(1) Sample in drum @ 14:40 hrs.

1 = Top of rig floor above ground
2 = Stickup of csg above ground 1 + measure from floor to top csg = SU
3 = Total csg length
4 = Depth of csg = Total Depth (TD)
Total csg – SU(2) = TD
5 = Casing back pull
6 = Sampler drive distance
7 = Total depth of driven sample = 4 + 6



PREPARED BY (Please print): D.E. Skoglie
TITLE: FTL DATE: 08/28/02
SIGNATURE: David E. Skoglie

REVIEWED BY (Please print): MG GARDNER
TITLE: MGR DATE:
SIGNATURE: MGardner 11-27-02

DFSNW-WS-00__

Duratek Federal Services

Duratek Federal Services, Inc., Northwest Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

WELL I.D.: C3830	*WELL NUMBER*: N/A	*REPORT NUMBER*: 80	*DATE*: August 29, 2002 Thursday
CONTRACT NUMBER: 8248-55	*START CARD NO*: S00631	*RIG MODEL/NO*: SIMCO 5000 (Rig 106)	
PURPOSE: Daily and weekly safety meeting. Casing is drove to a depth of 98.97 ft bgs.	*REFERENCE*: DFSNW-DOW-006, Rev. 0	*LOCATION*: TX Tank Farm, 200 West	
REFERENCE MEASURING POINT: Steel Plate		*TOTAL SHIFT FOOTAGE*: 11.56 ft.	

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
7.0 " OD	NA	CS	Shoe, 7.5 " OD	86.11 ft	98.97 ft

BORING DEPTH:
START: 87.41 ft
END: 98.97 ft

START TIME: 07:00
END TIME: 16:30
CONTRACTOR TIME: 0.5
TOTAL TIME: 9.5

DOCUMENTED DOWNTIME
HPT – 4.5 hrs.

WEATHER CONDITIONS (373-2716 or 373-2710)

10:00: Temperature 74F, Humidity 51%, Barometric pressure 29.25, Wind N @ 6 mph

CASING SUMMARY

Bottom of 7 " OD casing (start of shift) = 86.11 ft.
Bottom of 7" OD casing (end of shift) = 98.97 ft
Casing (7 in OD) stick up (end of shift) = 1.14 ft

SAMPLE SUMMARY

N/A

PERSONNEL:
OPERATOR: K. Olson
D Morris/D Curry
WA LICENSE #: 1217
OTHER: DE Skoglie
S. Snook/R. Sharp (Opr)
K. Johnson (PIC)
K. Hartelius (HPT)
K. Flower

TIME FROM	TO	*DESCRIPTION OF OPERATIONS/REMARKS*
07:00	07:45	Daily and weekly safety meeting conducted. Discussed anticipated activities. Complete equipment maintenance and inspection, no deficiencies noted.
07:45	08:50	Remove 4 ft section of casing. Trip Dp/tip into boring.
08:50	08:58	Add casing 5.0 (total 91.46 ft) and Dp 5.01 (total 96.13 ft). Set-up hammer.
08:58	08:59	Drive casing to 87.06 ft bgs. 91.46 – (3.35 + 1.05). Blows 26. Secure hammer and disassemble drive head assembly.
08:59	09:22	Add casing 5.0 (total 96.46 ft) and Dp 5.0 (total 97.13 ft). Set-up hammer.
09:22	09:30	Drive casing to 92.04 ft bgs. 96.46 – (3.35 + 1.07). Blows 22/21/20/19/20. Secure hammer and disassemble drive head assembly.
09:30	09:45	Add casing 5.0 (total 101.46 ft) and Dp 5.01 (total 102.14 ft). Set-up hammer.
09:45	09:47	Drive casing to 97.07ft bgs. 101.46 – (3.35 + 1.04). Blows 24/23/25/26/21. Secure hammer and disassemble drive head assembly.
09:47	10:03	Add casing 2.0 (total 103.46 ft) and Dp 2.0 (total 104.14 ft). Set-up hammer.
10:03	10:30	Drive casing to 98.97 ft bgs. 103.46 – (3.35 + 1.14). Blows 24/5. Secure hammer and disassemble drive head assembly (10:15 hrs). Break 10:15 – 10:30.
10:30	11:20	Trip Dp out of bore-hole (11:20). Disassemble sample shoe/liner assembly.
11:20	11:35	Secure site. Complete documentation.
11:35	12:05	Lunch
12:05	16:30	No alternate HPT this pm. Conduct discussion regarding completion. Complete documentation.

REPORT BY: DE Skoglie
TITLE: Field Team Lead
SIGNATURE: D. E. Skoglie

REVIEWED BY: MG Gardner
TITLE: Project Manager DATE: 10-08-02
SIGNATURE: MGard

Duratek Federal Services, Inc., Northwest Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 3

WELL I.D.: C3830	*WELL NUMBER*: N/A	*REPORT NUMBER*: 81	*DATE*: September 03, 2002 Tuesday
CONTRACT NUMBER: 8248-55	*START CARD NO*: S00631	*RIG MODEL/NO*: SIMCO 5000 (Rig 106)	
PURPOSE: Daily safety meeting. Casing is drove to a depth of 102.99 ft bgs. Obtain samples S02083-15 and S02083-16.	*REFERENCE*: DFSNW-DOW-006, Rev. 0	*LOCATION*: TX Tank Farm, 200 West	
REFERENCE MEASURING POINT: Steel Plate plus 0.25 ft (ground level)		*TOTAL SHIFT FOOTAGE*: 4.02 ft.	

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
7.0 " OD	NA	CS	Shoe, 7.5 " OD	98.97 ft	102.99 ft

BORING DEPTH:
START: 98.97 ft
END: 102.99 ft

START TIME: 07:00
END TIME: 16:30
CONTRACTOR TIME: 0.5
TOTAL TIME: 9.5

DOCUMENTED DOWNTIME
Wind 2 hrs.

WEATHER CONDITIONS (373-2716 or 373-2710)

07:04: Temperature 62F, Humidity 47%, Barometric pressure 29.063, Wind NW @ 11 mph, gusts to 20

CASING SUMMARY

Bottom of 7 " OD casing (start of shift) =	98.97 ft.
Bottom of 7" OD casing (end of shift) =	102.99 ft
Casing (7 in OD) stick up (end of shift) =	1.37 ft
Total casing =	107.46 ft

SAMPLE SUMMARY

Sample: S02083-15 (98.97 – 100.36) 1.39 ft. 100%
Sample: S02083-16 (100.32 – 101.72) 1.4 ft. 100%

PERSONNEL:
OPERATOR: K. Olson
D Morris/D Curry
WA LICENSE #: 1217
OTHER: DE Skoglie
S. Snook (Opr)
R. Sharp (PIC)
K. Hartelius (HPT)

TIME FROM	TO	*DESCRIPTION OF OPERATIONS/REMARKS*
07:00	07:45	Daily and weekly safety meeting conducted. Discussed anticipated activities. Complete equipment maintenance and inspection, no deficiencies noted.
07:45	08:44	Tag bottom @ 98.97 ft bgs. Trip Dp/sampler into bore-hole.
08:44	09:25	Drive sample S02083- 15 (#14) (98.97 - 100.36) 08:44 – 08:45. Blows 3/3/2. Sample on deck @ 09:18 and in drum @ 09:25.
09:25	09:30	Tag bottom @ 100.32 ft bgs.
09:30	11:30	Shut down due to wind (18 mph with gusts to 26).
11:00	11:30	Lunch
11:30	12:13	Trip in with sampler.
12:13	13:15	Drive sample S02083- 16 (#15) (100.32 - 101.72). Blows 2/2/1. Sample on deck @ 12:52 and in drum @ 13:00 hrs.
13:15	14:02	Trip in Dp.
14:02	14:07	Add casing 4.0 (total 107.46 ft) and Dp 4.0 (total 108.14 ft). Set-up hammer.
14:07	14:10	Drive casing to 102.99 ft bgs. 107.46 – (3.35 + 1.12). Blows 9/18/17/20. Secure hammer and disassemble drive head assembly. Backpull casing 0.25 ft.
14:10		Trip Dp out of boring.
	15:30	Run a sampler into boring (land on bottom).
15:30	16:30	Secure site complete documentation.

REPORT BY: DE Skoglie
TITLE: Field Team Lead
SIGNATURE: DE Skoglie

REVIEWED BY: MG Gardner
TITLE: Project Manager DATE: 10-08-02
SIGNATURE: MGGardner

Duratek Federal Services, Inc., Northwest Operations

C3830 **SAMPLE FORM**

FAR No. 81 Page 2 of 3

Sample No. S02083-15 Sample Tracking No. 14

Target Depth 99 to 100

(1) 3.35 top of rig floor above ground

(2) 4.49 casing stickup above ground

Csg Total (3) 103.46 - Stickup (2) 4.49 = TD (4) 98.97

Does not include drive head

Backpull stickup (2+5) .25

Sample depth (4) 98.97 to (4+6) 100.36

Blow Count 1.39

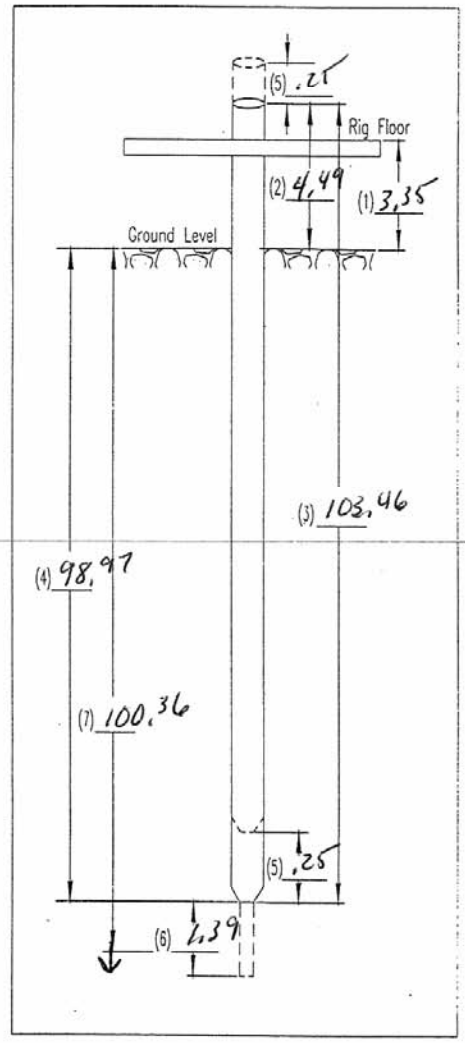
	.5 ft	1 ft	~~1.5~~ ft
Start Time 0844	3	3	2
End Time 0845			

Estimated Recovery: 100%

Remarks:

① Sample in drum @ 09:25 hrs.

1 = Top of rig floor above ground
2 = Stickup of csg above ground 1 + measure from floor to top csg = SU
3 = Total csg length
4 = Depth of csg = Total Depth (TD)
Total csg – SU(2) = TD
5 = Casing back pull
6 = Sampler drive distance
7 = Total depth of driven sample = 4 + 6



PREPARED BY (Please print): D.E. SKOGLIE
TITLE: PTL DATE: 09 03 02
SIGNATURE: Dan E Skoglie

REVIEWED BY (Please print): MG GARDNER
TITLE: MBR DATE:
SIGNATURE: MG Gardner 10-8-02

DFSNW-WS-00__

Duratek Federal Services, Inc., Northwest Operations

C3830 **SAMPLE FORM**

FAR No. 81 Page 3 of 3

Sample No. S020883-116 Sample Tracking No. 15

Target Depth 100 to 101

(1) 3.35 top of rig floor above ground

(2) 4.49 casing stickup above ground

Csg Total (3) 103.46 - Stickup (2) 4.49 = TD (4) 100.32
Does not include drive head

Backpull stickup (2+5) .25

Sample depth (4) 100.32 to (4+6) 101.72

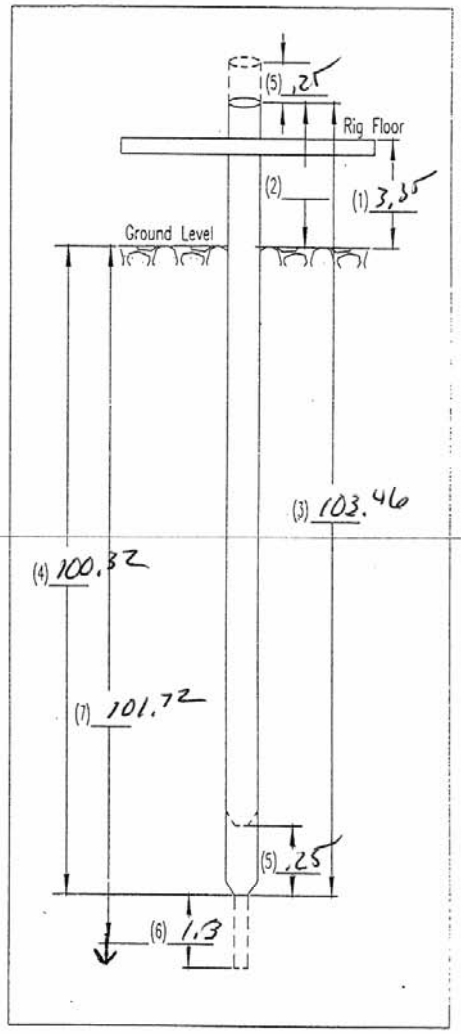
Blow Count 1.3

	.5 ft	1 ft	~~1.5~~ ft
Start Time 1213	2	2	1
End Time 1214			

Estimated Recovery: 100%

Remarks:
(1) Sample in drum @ 1300 hrs.
(2) DTB TAG 100.32 FT BGS.

1 = Top of rig floor above ground
2 = Stickup of csg above ground 1 + measure from floor to top csg = SU
3 = Total csg length
4 = Depth of csg = Total Depth (TD)
Total csg – SU(2) = TD
5 = Casing back pull
6 = Sampler drive distance
7 = Total depth of driven sample = 4 + 6



PREPARED BY (Please print): D. E. SKOGLIE
TITLE: FTL DATE: 09 03 02
SIGNATURE: David E. Skoglie

REVIEWED BY (Please print): MG GARDNER
TITLE: MGR DATE: 10-08-02
SIGNATURE: MG Gardner

DFSNW-WS-00__

Duratek Federal Services, Inc., Northwest Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 3

WELL I.D.: C3830	*WELL NUMBER*: N/A	*REPORT NUMBER*: 82	*DATE*: September 04, 2002 Wednesday
CONTRACT NUMBER: 8248-55	*START CARD NO*: S00631	*RIG MODEL/NO*: SIMCO 5000 (Rig 106)	
PURPOSE: Daily safety meeting. Casing is drove to a depth 113.6 ft bgs. Obtain samples S02083-17 and S02083-18 .	*REFERENCE*: DFSNW-DOW-006, Rev. 0	*LOCATION*: TX Tank Farm, 200 West	
REFERENCE MEASURING POINT: Steel Plate		*TOTAL SHIFT FOOTAGE*: 10.6 ft.	

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
7.0 " OD	NA	CS	Shoe, 7.5 " OD	102.99 ft	113.6 ft

BORING DEPTH:
START: 102.99 ft
END: 113.6 ft

START TIME: 07:00
END TIME: 16:30
CONTRACTOR TIME: 0.5
TOTAL TIME: 9.5

DOCUMENTED DOWNTIME
N/A

WEATHER CONDITIONS (373-2716 or 373-2710)

07:28: Temperature 46F, Humidity 55%, Barometric pressure 29.21, Wind @ 2 mph

CASING SUMMARY

Bottom of 7 " OD casing (start of shift) = 102.99 ft.
Bottom of 7" OD casing (end of shift) = 113.6 ft
Casing (7 in OD) stick up (end of shift) = 4.5 ft
Total casing = 121.45 ft

SAMPLE SUMMARY

Sample: S02083-17 (102.99 – 104.44) Rec ukn
Sample: S02083-18 () 100%

PERSONNEL:
OPERATOR: K. Olson
D Morris/D Curry
WA LICENSE #: 1217
OTHER: DE Skoglie
S. Snook (Opr)
R. Sharp (PIC)
K. Hartelius (HPT)

TIME FROM	TO	*DESCRIPTION OF OPERATIONS/REMARKS*
07:00	07:55	Daily and weekly safety meeting conducted. Discussed anticipated activities. Complete equipment maintenance and inspection, no deficiencies noted.
07:58	08:40	Drive sample S02083- 17 (#16) 102.99 – 104.44 (1.45 ft) 07:58 – 07:59. Blows 2/3/2. Sample on deck @ 08:30 and in drum @ 08:40.
08:40	09:33	Trip Dp into boring. Add casing 5.0 (total 112.46 ft) and Dp 5.0 (total 113.14 ft). Set-up hammer.
09:33	09:45	Drive casing to 107.89 ft bgs. 112.46 – (3.35 + 1.22). Blows 7/15/17/20/22. Secure hammer and disassemble drive head assembly.
09:45	10:15	Back-pull casing .25 ft. Break (10:06 – 10:15)
10:15	11:30	Trip Dp/tip from boring (10:55 hrs). Run sampler to bottom of boring.
11:30	12:00	Lunch
12:00	14:19	Drive sample S02083- 18 (#17) 107.89 – 109.19 (1.3 ft) 12:28 – 12:29. Blows 2/2/2. Secure hammer and disassemble drive head. Sample on deck @ 13:00 and in drum @ 13:11 hrs. Trip Dp/tip into boring.
14:19	14:42	Add casing 4.99 (total 117.45 ft) and Dp 5.01 (total 118.15 ft). Set-up hammer.
14:42	14:45	Drive casing to 113.0 ft bgs. 117.45 – (3.35 + 1.1). Blows 12/30/34/24/25. Secure hammer and disassemble drive head assembly. Blow counts dropped.
14:19	14:42	Add casing 4.0 (total 121.45 ft) and Dp 4.0 (total 122.15 ft). Set-up hammer.
14:42	14:45	Drive casing to 113.6 ft bgs. 121.45 – (3.35 + 4.5). Blows 36. Secure hammer and disassemble drive head assembly. Blow counts have came up significantly. A sample will be taken at this depth.
14:45	15:40	Secure hammer and disassemble drive head. Initiate Dp trip out.
15:40	16:30	Secure site.

REPORT BY: DE Skoglie
TITLE: Field Team Lead
SIGNATURE: D.E. Skoglie

REVIEWED BY: MG Gardner
TITLE: Project Manager DATE: 10-9-02
SIGNATURE: MGGardner

Duratek Federal Services, Inc., Northwest Operations

C3830 **SAMPLE FORM**

FAR No. 82 Page 2 of 3

Sample No. S02083-17 Sample Tracking No. 16

Target Depth 103 to 104

(1) 3.35 top of rig floor above ground

(2) 4.47 casing stickup above ground

Csg Total (3) 107.46 - Stickup (2) 4.47 = TD (4) 102.99
Does not include drive head

Backpull stickup (2+5) .25

Sample depth (4) 102.99 to (4+6) 104.44

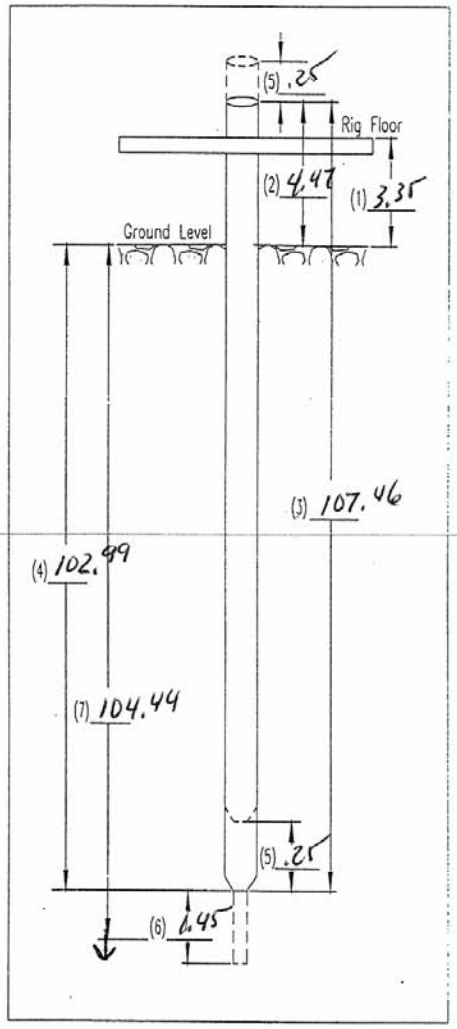
Blow Count 1.45

	.5 ft	1 ft	~~1.5~~ ft
Start Time 0758	2	3	2
End Time 0759			

Estimated Recovery: 90%

Remarks:
(1) Sample in drum @ 0840 hrs.

1 = Top of rig floor above ground
2 = Stickup of csg above ground 1 + measure from floor to top csg = SU
3 = Total csg length
4 = Depth of csg = Total Depth (TD)
Total csg – SU(2) = TD
5 = Casing back pull
6 = Sampler drive distance
7 = Total depth of driven sample = 4 + 6



PREPARED BY (Please print): D.E. SKOGLIE
TITLE: FTL DATE: 090402
SIGNATURE: David E Skoglie

REVIEWED BY (Please print): MG GARDNER
TITLE: MGR DATE:
SIGNATURE: MG Gardner 10-9-02

DFSNW-WS-00__

Duratek Federal Services, Inc., Northwest Operations

C3830 **SAMPLE FORM**

FAR No. 82 Page 3 of 3

Sample No. 502083-18 Sample Tracking No. 17

Target Depth 108 to 109

(1) 3.35 top of rig floor above ground

(2) 4.57 casing stickup above ground

Csg Total (3) 112.46 - Stickup (2) 4.57 = TD (4) 107.89
Does not include drive head

Backpull stickup (2+5) .25

Sample depth (4) 107.89 to (4+6) 109.19

Blow Count 1.3

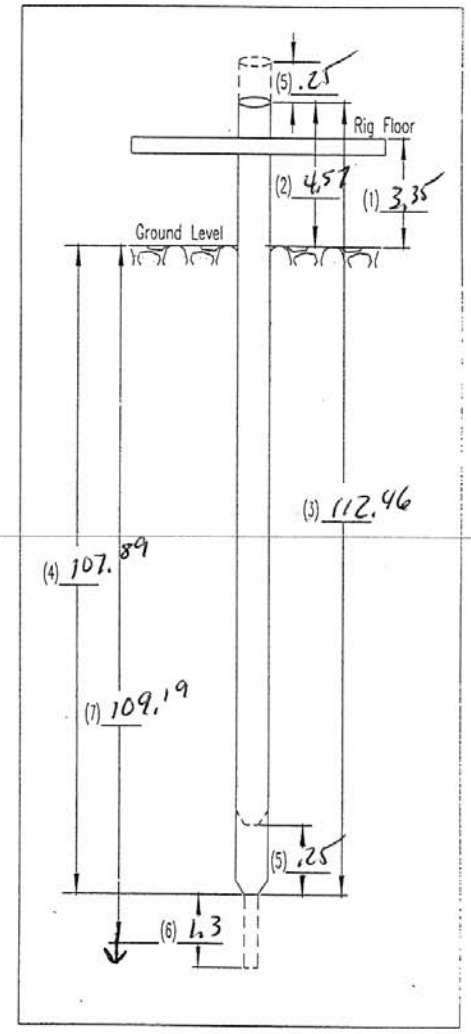
	.5 ft	1 ft	~~1.5~~ ft
Start Time 1228	2	2	2
End Time 1229			

Estimated Recovery: 90%

Remarks:

(1) Sample in drum @ 1311 hrs.

1 = Top of rig floor above ground
2 = Stickup of csg above ground 1 + measure from floor to top csg = SU
3 = Total csg length
4 = Depth of csg = Total Depth (TD)
Total csg – SU(2) = TD
5 = Casing back pull
6 = Sampler drive distance
7 = Total depth of driven sample = 4 + 6



PREPARED BY (Please print): D.E. SKOGLIE
TITLE: FTL DATE: 09 04 02
SIGNATURE: David E Skoglie

REVIEWED BY (Please print): MG GARDNER
TITLE: MGR DATE:
SIGNATURE: MGardner 10-9-02

DFSNW-WS-00__

Duratek Federal Services

Duratek Federal Services, Inc., Northwest Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 2

WELL I.D.: C3830	*WELL NUMBER*: N/A	*REPORT NUMBER*: 83	*DATE*: September 05, 2002 Thursday
CONTRACT NUMBER: 8248-55	*START CARD NO*: S00631	*RIG MODEL/NO*: SIMCO 5000 (Rig 106)	
PURPOSE: Daily safety meeting. Casing is drove to a depth 116.75 ft bgs. Obtain samples S02083-19.	*REFERENCE*: DFSNW-DOW-006, Rev. 0	*LOCATION*: TX Tank Farm, 200 West	
REFERENCE MEASURING POINT: Steel Plate		*TOTAL SHIFT FOOTAGE*: 3.85 ft.	

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
7.0 " OD	NA	CS	Shoe, 7.5 " OD	113.6 ft	117.45 ft

BORING DEPTH:
START: 113.6 ft
END: 117.45 ft

START TIME: 07:00
END TIME: 16:30
CONTRACTOR TIME: 0.5
TOTAL TIME: 9.5

DOCUMENTED DOWNTIME
N/A

WEATHER CONDITIONS (373-2716 or 373-2710)

07:28: Temperature 46F, Humidity 55%, Barometric pressure 29.21, Wind @ 2 mph

CASING SUMMARY

Bottom of 7 " OD casing (start of shift) =	113.6 ft
Bottom of 7" OD casing (end of shift) =	117.45 ft
Casing (7 in OD) stick up (end of shift) =	4.0 ft
Total casing =	121.45 ft

SAMPLE SUMMARY

Sample: S02083-19 (113.55 – 115.0)

PERSONNEL:
OPERATOR: K. Olson
D Morris/D Curry
WA LICENSE #: 1217
OTHER: DE Skoglie
R. Sharp (Opr)
K. Johnson (PIC)
R. Ancelet (HPT)

TIME FROM	TIME TO	DESCRIPTION OF OPERATIONS/REMARKS
07:00	07:58	Daily safety meeting conducted. Discussed anticipated activities. Complete equipment maintenance and inspection, no deficiencies noted.
07:58	09:02	Trip Dp/tip from boring. Tag depth to bottom @ 113.55 ft bgs. Run sampler to bottom of boring.
09:02	09:12	Set-up drive head and hammer.
07:58	10:00	Drive sample S02083- 19 (#18) 113.55 – 115.0 (1.45 ft) 09:12 – 09:13. Blows 5/7/6. Secure hammer and disassemble drive head. Sample on deck @ 09:56 and in drum @ 10:00 hrs.
10:00	11:40	Trip Dp into boring. Break 10:05 – 10:20. Fuel equipment.
11:40	12:15	Lunch
12:15	12:30	Add casing 4.0 (total 121.45 ft) and Dp 4.0 (total 122.15 ft). Set-up hammer.
12:30	12:47	Drive casing to 116.75 ft bgs. 122.15 – (3.35 + 1.35). Blows 113.6 – 114.0 = 13; 114.0 – 115.0 = 60; 115.0 – 116.0 = 78; 116.0 – 116.42 = 40; and 116.42 – 116.75 = 54; 116.75 – 117.45 refusal. Secure hammer and disassemble drive head assembly. Bore-hole has reached total depth of 117.45 ft bgs.
12:47	15:30	Disassemble Dp coming out of the boring.
15:30	16:30	Secure Site. Complete documentation.

REPORT BY: DE Skoglie
TITLE: Field Team Lead
SIGNATURE: David E. Skoglie

REVIEWED BY: KD Reynolds
TITLE: Project Manager DATE:
SIGNATURE: KD Reynolds 11-20-02

Duratek Federal Services, Inc., Northwest Operations

C3830 **SAMPLE FORM**

FAR No. 83 Page 2 of 3

Sample No. S02083-19 Sample Tracking No. 17B

Target Depth TBD to TBD

(1) 3.35 top of rig floor above ground

(2) 7.9 casing stickup above ground

Csg Total (3) 121.45 - Stickup (2) 7.9 = TD (4) 113.55
Does not include drive head

Backpull stickup (2+5) .5

Sample depth (4) 113.55 to (4+6) 115.0

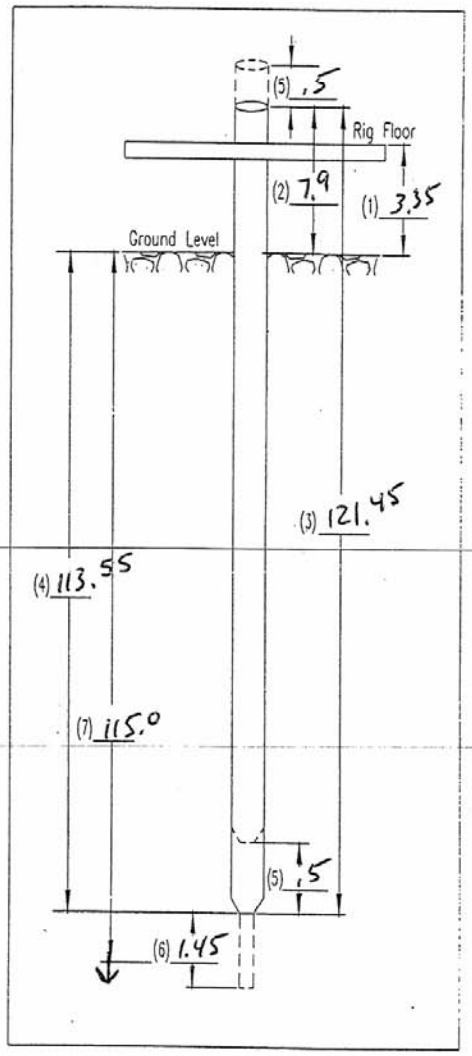
Blow Count 1.45

	.5 ft	1 ft	~~1.5~~ ft
Start Time 0912	5	7	6
End Time 0913			

Estimated Recovery: 100%

Remarks:
(1) Sample in down @ 10:00 hrs.

1 = Top of rig floor above ground
2 = Stickup of csg above ground 1 + measure from floor to top csg = SU
3 = Total csg length
4 = Depth of csg = Total Depth (TD)
Total csg – SU(2) = TD
5 = Casing back pull
6 = Sampler drive distance
7 = Total depth of driven sample = 4 + 6



PREPARED BY (Please print): D.E. Skoglie
TITLE: FTL DATE: 09/05/02
SIGNATURE: David E. Skoglie

REVIEWED BY (Please print): Kent Reynolds
TITLE: Prog. M. DATE: 11-22-02
SIGNATURE: Kent Reynolds

DFSNW-WS-00__

Duratek Federal Services, Inc., Northwest Operations

TUBULAR GOODS DUAL STRING TALLY SHEET

Page 3 of 3

DATE: 08/20/02 09/05/02 | WELL NUMBER: C3830 | CONTINUATION OF REPORT NUMBER: 83

CASING JT. NO.	CASING LENGTH (in feet)		INNER STRING JT. NO.	INNER STRING LENGTH (in feet)	
1A	1.45	(SHOE)	1B	0.82	(TIP)
2A	1.99		2B	4.99	(C)
3A	2.0	5.44	3B	5.25	11.06
4A	5.0	10.44	4B	5.0	16.06
5A	5.0	15.44	OFF 5B	4.0	20.06
OFF 6A	4.0	19.44	6B	5.0	21.06
7A	5.0	20.44	7B	5.01	26.07
8A	5.0	25.44	8B	5.0	31.07
9A	5.0	30.44	OFF 9B	2.0	33.07
OFF 10A	2.0	32.44	10B	5.01	36.08
11A	5.01	35.45	11B	5.0	41.08
12A	5.0	40.45	12B	5.01	46.09
13A	5.0	45.45	13B	5.0	51.09
14A	5.0	50.45	14B	5.01	56.10
15A	5.0	55.45	OFF 15B	2.0	58.10
OFF 16A	2.0	57.45	OFF 16B	4.0	62.10
OFF 17A	4.0	61.45	17B	5.0	61.10
18A	5.0	60.45	18B	5.01	66.11

CASING JT. NO.	CASING LENGTH (in feet)		INNER STRING JT. NO.	INNER STRING LENGTH (in feet)	
19A	5.0	65.45	19B	5.0	71.11
20A	5.0	70.45	20B *	2.0	73.11
21A *	2.0	72.45	21B *	4.0	77.11
22A *	4.0	76.45	22B	5.01	82.12
23A	5.01	81.46	OFF 23B	4.0	86.12
OFF 24A	4.0	85.46	24B	5.0	87.12
25A	5.0	86.46	25B	4.0	91.12
OFF 26A	4.0	90.46	26B	5.01	92.13
27A	5.0	91.46	27B	5.0	97.13
28A	5.0	96.46	28B	5.01	102.14
29A	5.0	101.46	29B *	2.0	104.14
30A *	2.0	103.46	30B *	4.0	108.14
31A *	4.0	107.46	31B	5.0	113.14
32A	5.0	112.46	32B	5.01	118.15
33A	4.99	117.45	33B	4.0	122.15
34A	4.0	121.45	34B		
35A			35B		
36A			36B		

TOTAL for Page:		FT	TOTAL for Page:		FT
TOTAL for Page:		FT	TOTAL for Page:		FT
TOTAL (ALL):	N/A	FT	TOTAL (ALL):		FT

REPORT BY: DE Skoglie
TITLE: Field Team Lead DATE: 09/05/02
SIGNATURE: David E. Skoglie

REVIEWED BY: ~~MG Gardner~~ KD Reynolds
TITLE: Project Manager DATE: 11-20-02
SIGNATURE: Kristi Reynolds

DRTK-WS-003

* CASING WAS LEFT IN STRING
NOTE 1: SAMPLER + STINGER = 5.67 FT.
NOTE 2: DRIVE HEAD = 3.2 FT.

Duratek Federal Services, Inc., Northwest Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

WELL I.D.: C3830	*WELL NUMBER*: N/A	*REPORT NUMBER*: 84	*DATE:* September 06, 2002 Friday
CONTRACT NUMBER: 8248-55	*START CARD NO*: S00630	*RIG MODEL/NO*: SIMCO 5000 (Rig 106)	
PURPOSE: Daily Safety meeting. Gyroscope survey and equipment survey and release.	*REFERENCE*: DFSNW-DOW-006, Rev. 0	*LOCATION*: TX Tank Farm, 200 West	
REFERENCE MEASURING POINT: Steel Plate		*TOTAL SHIFT FOOTAGE*: 0.0 ft.	

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
7.0 " OD	NA	CS	Shoe, 7.5 " OD	117.45 ft	117.45 ft.

BORING DEPTH:
START: 117.45 ft
END: 117.45 ft

START TIME: 0700
END TIME: 1530
CONTRACTOR TIME: 0.5
TOTAL TIME: 8.5

DOCUMENTED DOWNTIME

N/A

WEATHER CONDITIONS (373-2716)

N/A

CASING SUMMARY

Bottom of 7 " OD casing (start of shift)	= 117.45 ft.
Bottom of 7" OD casing (end of shift)	= 117.45 ft.
Casing (7 in OD) stick up (end of shift)	= 4.0 ft.
Total Casing =	= 121.45 ft.

SAMPLE SUMMARY

N/A

PERSONNEL:
OPERATOR: KC Olson
DL Curry/DE Morris
WA LICENSE #: 1217
OTHER: D Skoglie
K Johnson (Optr/PIC)
K Hartelius (HPT)
K. Flower/R. Sharpe
K. Young/F. Hall

TIME FROM	TO	*DESCRIPTION OF OPERATIONS/REMARKS*
07:00	07:45	Conduct daily safety meeting.
07:45		A gyroscope survey was completed.
		Equipment was surveyed and released (the drill pipe was transported to the Duratek pipe yard and pressure washed.
	15:30	Documentation was completed. Area secured.

REPORT BY: DE Skoglie
TITLE: Field Team Lead
SIGNATURE: David E. Skoglie

REVIEWED BY: KD Reynolds
TITLE: Project Manager DATE: 11-20-02
SIGNATURE: Kurt Reynolds

Duratek Federal Services, Inc., Northwest Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

WELL I.D.: C3830	*WELL NUMBER*: N/A	*REPORT NUMBER*: 85	*DATE*: September 09, 2002 Monday
CONTRACT NUMBER: 8248-55	*START CARD NO*: S00630	*RIG MODEL/NO*: SIMCO 5000 (Rig 106)	
PURPOSE: Daily Safety meeting. Geophysical logging of borehole was initiated and equipment survey and release.	*REFERENCE*: DFSNW-DOW-006, Rev. 0	*LOCATION*: TX Tank Farm, 200 West	
REFERENCE MEASURING POINT: Steel Plate		*TOTAL SHIFT FOOTAGE*: 0.0 ft.	

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
7.0 " OD	NA	CS	Shoe, 7.5 " OD	117.45 ft	117.45 ft.

BORING DEPTH:
START: 117.45 ft
END: 117.45 ft

START TIME: 0700
END TIME: 1630
CONTRACTOR TIME: 0.5
TOTAL TIME: 9.5

DOCUMENTED DOWNTIME

N/A

WEATHER CONDITIONS (373-2716)

N/A

CASING SUMMARY

Bottom of 7 " OD casing (start of shift)	= 117.45 ft.
Bottom of 7" OD casing (end of shift)	= 117.45 ft.
Casing (7 in OD) stick up (end of shift)	= 4.0 ft.
Total Casing =	= 121.45 ft.

SAMPLE SUMMARY

N/A

PERSONNEL:
OPERATOR: KC Olson
DL Curry/DE Morris
WA LICENSE #: 1217
OTHER: D Skoglie
K Johnson (Optr/PIC)
K Hartelius (HPT)
K. Flower/R. Sharpe
K. Young/F. Hall

TIME FROM	TO	*DESCRIPTION OF OPERATIONS/REMARKS*
07:00	07:35	Conduct daily safety meeting.
07:35		Geophysical logging was conducted. Moisture logging was completed and germanium logging initiated (10 ft).
		Equipment was surveyed and released. Prepare for moisture sensor installation.
	16:30	Documentation was completed. Area secured.

REPORT BY: DE Skoglie
TITLE: Field Team Lead
SIGNATURE: David E. Skoglie

REVIEWED BY: KD Reynolds
TITLE: Project Manager DATE: 11-20-02
SIGNATURE: Kurt Reynolds

Duratek Federal Services, Inc., Northwest Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

WELL I.D.: C3830	*WELL NUMBER*: N/A	*REPORT NUMBER*: 86	*DATE:* September 10, 2002 Tuesday
CONTRACT NUMBER: 8248-55	*START CARD NO*: S00630	*RIG MODEL/NO*: SIMCO 5000 (Rig 106)	
PURPOSE: Daily Safety meeting. Geophysical logging of borehole was initiated and equipment survey and release.	*REFERENCE*: DFSNW-DOW-006, Rev. 0	*LOCATION*: TX Tank Farm, 200 West	
REFERENCE MEASURING POINT: Steel Plate		*TOTAL SHIFT FOOTAGE*: 0.0 ft.	

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
7.0 " OD	NA	CS	Shoe, 7.5 " OD	117.45 ft	117.45 ft.

BORING DEPTH:
START: 117.45 ft
END: 117.45 ft

START TIME: 0700
END TIME: 1630
CONTRACTOR TIME: 0.5
TOTAL TIME: 9.5

DOCUMENTED DOWNTIME

Health Physics - 1.5 hrs.

WEATHER CONDITIONS (373-2716)

N/A

CASING SUMMARY

Bottom of 7 " OD casing (start of shift)	= 117.45 ft.
Bottom of 7" OD casing (end of shift)	= 117.45 ft.
Casing (7 in OD) stick up (end of shift)	= 4.0 ft.
Total Casing =	= 121.45 ft.

SAMPLE SUMMARY

N/A

PERSONNEL:
OPERATOR: KC Olson
DL Curry/DE Morris
WA LICENSE #: 1217
OTHER: D Skoglie
K Johnson (Optr/PIC)
K Hartelius (HPT)
K. Flower/R. Sharpe
K. Young/F. Hall

TIME FROM	TO	*DESCRIPTION OF OPERATIONS/REMARKS*
07:00	07:35	Conduct daily safety meeting.
07:35		Geophysical logging was conducted. Germanium logging conducted to 52.0 ft.
		Equipment was surveyed and released. Prepare for moisture sensor installation.
	16:30	Documentation was completed. Area secured.

REPORT BY: DE Skoglie
TITLE: Field Team Lead
SIGNATURE: David E. Skoglie

REVIEWED BY: KD Reynolds
TITLE: Project Manager DATE: 11-20-02
SIGNATURE: Kurt Reynolds

Duratek Federal Services, Inc., Northwest Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

WELL I.D.: C3830	*WELL NUMBER*: N/A	*REPORT NUMBER*: 87	*DATE*: September 11, 2002 Wednesday
CONTRACT NUMBER: 8248-55	*START CARD NO*: S00630	*RIG MODEL/NO*: SIMCO 5000 (Rig 106)	
PURPOSE: Daily Safety meeting. Geophysical logging of borehole and equipment survey and release.	*REFERENCE*: DFSNW-DOW-006, Rev. 0	*LOCATION*: TX Tank Farm, 200 West	
REFERENCE MEASURING POINT: Steel Plate		*TOTAL SHIFT FOOTAGE*: 0.0 ft.	

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
7.0 " OD	NA	CS	Shoe, 7.5 " OD	117.45 ft	117.45 ft.

BORING DEPTH:
START: 117.45 ft
END: 117.45 ft

START TIME: 0700
END TIME: 1630
CONTRACTOR TIME: 0.5
TOTAL TIME: 9.5

DOCUMENTED DOWNTIME

Logging tool - 3 hrs.

WEATHER CONDITIONS (373-2716)

Temperature – 76 F; Wind – N @5 mph; Barometric pressure – 29.24; Humidity – 28%.

CASING SUMMARY

Bottom of 7 " OD casing (start of shift)	= 117.45 ft.
Bottom of 7" OD casing (end of shift)	= 117.45 ft.
Casing (7 in OD) stick up (end of shift)	= 4.0 ft.
Total Casing =	= 121.45 ft.

SAMPLE SUMMARY

N/A

PERSONNEL:
OPERATOR: KC Olson
DL Curry/DE Morris
WA LICENSE #: 1217
OTHER: D Skoglie
K Johnson (Optr/PIC)
K Hartelius (HPT)
K. Flower/R. Sharpe
K. Young/F. Hall

TIME FROM	TO	*DESCRIPTION OF OPERATIONS/REMARKS*
07:00	07:30	Conduct daily safety meeting.
07:30		The logging tool did not remain cooled down. Initiated cool-down @ 10:30 tool is cooled-down. Geophysical logging was conducted. Germanium logging conducted.
	15:00	Equipment was surveyed and released. Prepare for moisture sensor installation.
15:00	16:30	Documentation was completed. Area secured.

REPORT BY: DE Skoglie
TITLE: Field Team Lead
SIGNATURE: David F. Skoglie

REVIEWED BY: KD Reynolds
TITLE: Project Manager DATE: 11-20-02
SIGNATURE:

Duratek Federal Services, Inc., Northwest Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

WELL I.D.: C3830	*WELL NUMBER*: N/A	*REPORT NUMBER*: 88	*DATE*: September 12, 2002 Thursday
CONTRACT NUMBER: 8248-55	*START CARD NO*: S00630	*RIG MODEL/NO*: SIMCO 5000 (Rig 106)	
PURPOSE: Daily Safety meeting. Geophysical logging completed.	*REFERENCE*: DFSNW-DOW-006, Rev. 0	*LOCATION*: TX Tank Farm, 200 West	
REFERENCE MEASURING POINT: Steel Plate		*TOTAL SHIFT FOOTAGE*: 0.0 ft.	

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
7.0 " OD	NA	CS	Shoe, 7.5 " OD	117.45 ft	117.45 ft.

BORING DEPTH:
START: 117.45 ft
END: 117.45 ft

START TIME: 0700
END TIME: 1630
CONTRACTOR TIME: 0.5
TOTAL TIME: 9.5

DOCUMENTED DOWNTIME

Health physics – 1.5 hrs.

WEATHER CONDITIONS (373-2716)

N/A

CASING SUMMARY

Bottom of 7 " OD casing (start of shift)	= 117.45 ft.
Bottom of 7" OD casing (end of shift)	= 117.45 ft.
Casing (7 in OD) stick up (end of shift)	= 4.0 ft.
Total Casing =	= 121.45 ft.

SAMPLE SUMMARY

N/A

PERSONNEL:
OPERATOR: KC Olson
DL Curry/DE Morris
WA LICENSE #: 1217
OTHER: D Skoglie
K Johnson (Optr/PIC)
K Hartelius (HPT)
K. Flower/R. Sharpe
K. Young/F. Hall

TIME FROM	TO	*DESCRIPTION OF OPERATIONS/REMARKS*
07:00	07:30	Conduct daily safety meeting.
07:30	14:00	Geophysical logging was completed. Germanium logging conducted to final depth.
14:00	15:00	Equipment was surveyed and released. Prepare for moisture sensor installation. Install hydraulic hose on drill unit. Casing slips cleaned. No air samplers on location, therefore back-pulling operations cannot be started.
15:00	16:30	Documentation was completed. Area secured.

REPORT BY: DE Skoglie
TITLE: Field Team Lead
SIGNATURE: David E. Skoglie

REVIEWED BY: KD Reynolds
TITLE: Project Manager DATE: 11-20-02
SIGNATURE:

Duratek Federal Services, Inc., Northwest Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

WELL I.D.: C3830	*WELL NUMBER*: N/A	*REPORT NUMBER*: 89	*DATE:* September 16, 2002 Monday
CONTRACT NUMBER: 8248-55	*START CARD NO*: S00630	*RIG MODEL/NO*: SIMCO 5000 (Rig 106)	
PURPOSE: Daily Safety meeting. Borehole decommissioning and perk test.	*REFERENCE*: DFSNW-DOW-006, Rev. 0	*LOCATION*: TX Tank Farm, 200 West	
REFERENCE MEASURING POINT: Steel Plate		*TOTAL SHIFT FOOTAGE*: 16.26 ft. (decommissioning)	

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
7.0 " OD	NA	CS	Shoe, 7.5 " OD	117.45 ft	96.11 ft.

BORING DEPTH: START: 117.45 ft
END: 101.19 ft

START TIME: 0700
END TIME: 1630
CONTRACTOR TIME: 0.5
TOTAL TIME: 9.5

DOCUMENTED DOWNTIME

Health physics – 1.0 hrs.

WEATHER CONDITIONS (373-2716)

Temperature – 64F; Wind – NW @5; Barometric pressure 29.15; Humidity – 52%.

CASING SUMMARY

Bottom of 7 " OD casing (start of shift)	= 117.45 ft.
Bottom of 7" OD casing (end of shift)	= 96.11 ft.
Casing (7 in OD) stick up (end of shift)	= 5.35 ft.
Total Casing (end of shift)	= 101.46 ft.

SAMPLE SUMMARY

N/A

PERSONNEL:

OPERATOR: KC Olson
DL Curry/DE Morris
WA LICENSE #: 1217
OTHER: D Skoglie
K Johnson (Optr/PIC)
K Hartelius (HPT)
K. Flower/R. Sharpe
K. Young/F. Hall

TIME FROM	TO	*DESCRIPTION OF OPERATIONS/REMARKS*
07:00	09:00	Conduct daily safety meeting. Complete equipment inspection with no deficiencies. A discussion was held regarding completion of the boring. 08:35 the Work Package is on location.
09:00		Set-up air samplers. Haul bentonite to rig from staging area (inside TX Tank Farm).
	11:00	Back-pull casing (4 and 4.99 ft). Hydraulic pressure to back-pull is 1,900 psig. Tag DTB 116.95 ft bgs (122.3 – (3.35 + 2.0) 10:50 hrs. Add bentonite (4. sks) through casing to 108.94 ft bgs (113.2 – [3.35 + 0.91]). Back-pull casing 5.0 ft. Casing @ 103.2 ft bgs. Add bentonite crumbles (1 sk) to a depth of 106.99 ft bgs (111.25 – (3.35 + 0.91). Run tremie through casing shoe (110.0 – [3.35 + 3.2] =103.45 ft bgs).
11:00	11:05	Add 2 gallon water to hydrate bentonite. Add sand (10 – 30) 2.6 gallons. Tag 112.4 – (3.35 + 3.15) = 105.9 ft bgs.
11:05		Lunch (11:05 – 11:35) Hydrate bentonite.
	12:29	Tag DTB @ 105.87 ft bgs (112.37 – [3.35 + 3.15]). Add 4 gallons water and monitor test as follows:
12:29	14:08	

Time	Tape Measurement	BGS Measurement	Time	Tape Measurement	BGS Measurement
12:29	110.04	103.54	12:30	110.05	103.55
12:31	110.05	103.55	12:32	110.05	103.55
12:33	110.06	103.56	12:34	110.06	103.56
12:35	110.06	103.56	12:36	110.06	103.56
12:37	110.06	103.56	12:38	110.06	103.56
12:43	110.06	103.56	12:48	110.06	103.56
12:53	110.06	103.56	12:58	110.06	103.56
13:03	110.07	103.57	13:08	110.07	103.57
13:13	110.08	103.58	13:18	110.08	103.58
13:23	110.10	103.60	13:28	110.11	103.61
13:38	110.13	103.63	13:48	110.15	103.65
13:58	110.18	103.68	14:08	110.20	103.70

14:08		Terminate test (Mr. Sydnor). Pull tremie out of boring. Back-pull casing (4 ft). Casing pulled @ 1,300 psig. Add 1 sk crumbles. Pull casing (2 ft). Casing @ 96.11 ft BGS (101.46 – [3.35 + 2.0]). Tag 109.13 – (3.35 + 2.61) = 103.17 ft BGS.
		Add bentonite crumbles (1 sk). Tag 107.15 – (3.35 +2.61) = 101.19 ft BGS.
	16:30	Secure Site due Health Physics (15:10 hrs.) Complete documentation and discuss upcoming operations.

REPORT BY: DE Skoglie
TITLE: Field Team Lead
SIGNATURE: David E. Skoglie

REVIEWED BY: KD Reynolds
TITLE: Project Manager DATE: 11-20-02
SIGNATURE:

Duratek Federal Services, Inc., Northwest Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

WELL I.D.: C3830	*WELL NUMBER*: N/A	*REPORT NUMBER*: 90	*DATE*: September 17, 2002 Tuesday
CONTRACT NUMBER: 8248-55	*START CARD NO*: S00630	*RIG MODEL/NO*: SIMCO 5000 (Rig 106)	
PURPOSE: Daily Safety meeting. Borehole decommissioning and moisture tensiometer installation.	*REFERENCE*: DFSNW-DOW-006, Rev. 0	*LOCATION*: TX Tank Farm, 200 West	
REFERENCE MEASURING POINT: Steel Plate		*TOTAL SHIFT FOOTAGE*: 39.54 ft. (decommissioning)	

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
7.0 " OD	NA	CS	Shoe, 7.5 " OD	96.11 ft	59.9 ft.

BORING DEPTH: START: 101.19 ft
END: 61.65 ft

START TIME: 0700
END TIME: 1630
CONTRACTOR TIME: 0.5
TOTAL TIME: 9.5

DOCUMENTED DOWNTIME

Minimal

WEATHER CONDITIONS (373-2716)

Temperature 57F; Wind SW 5 –9; Humidity 77%.

CASING SUMMARY

Bottom of 7 " OD casing (start of shift)	= 96.11 ft.
Bottom of 7" OD casing (end of shift)	= 59.90 ft.
Casing (7 in OD) stick up (end of shift)	= 2.2 ft.
Total Casing (end of shift)	= 65.45 ft.

SAMPLE SUMMARY

N/A

PERSONNEL:
OPERATOR: KC Olson
DL Curry/DE Morris
WA LICENSE #: 1217
OTHER: D Skoglie
K Johnson (Optr/PIC)
K Hartelius (HPT)
K. Flower/R. Sharpe
K. Young/F. Hall

TIME FROM	TO	*DESCRIPTION OF OPERATIONS/REMARKS*
07:00	09:30	Initial start-up delay, the PIC is in training. Conduct daily safety meeting. Complete equipment inspection with no deficiencies. A discussion was held regarding completion of the boring.
09:30	09:52	Initial tag revealed a depth of 101.19 ft BGS. New S.U. on tremie (PVC) 101.2 ft BGS. Add sand 1 sk, a depth of 98.95 ft BGS was obtained. Top of landing plate is 2.75 ft. 105.05 bottom of boring to landing plate.
09:52	10:24	The tensiometer is layed out and marked. Water is added to the tensiometer. The tensiometer is ran to bottom.
10:24	10:53	Sand (5 gallon) and water (5 gallon) was tremmied through the casing shoe. A tag revealed a depth to bottom of 96.8 ft BGS (102.9 – [3.35 + 2.75]). Add 1/8 sk sand and retag @ 96.6 ft BGS (102.7 – [3.35 + 2.75]).
10:53	11:30	Pull tremie out of boring. Pull casing (5.0 ft). Casing pulling @ 800 psig.
11:30	12:40	Lunch CHG and Duratek Management onsite to BBQ for crew. The Rib Steaks were superb.
12:40	13:42	Move the pulley to the rotary head saver sub (alignment is better). A tag revealed a depth of 96.25 ft BGS (101.5 – [3.35 + 1.9]). Casing @ 91.21 ft BGS. Add bentonite (2 sks). A tag determined a depth of 92.25 ft BGS (97.5 – [3.35 + 1.9]). Pull casing (2 – 5's). Casing depth is 81.01 ft BGS (86.46 – [3.35 + 2.1]).
13:42	14:50	Add bentonite (4 sks) 13:47 hrs. Tag determined a depth of 83.95 ft BGS (89.4 – [3.35 + 2.1]). Pull casing (5.0 and 5.01 ft in length). Casing depth is 71.5 ft BGS 76.45 – (3.35 + 1.6). Tag revealed a depth of 83.85 ft BGS. Add 4 sks bentonite. Depth of bottom hole is 76.0 ft BGS (80.95 – [3.35 + 1.6]). Add 1 sk bentonite.
14:50	15:15	No HPT helping survey out surveyors (15 minutes). Pull casing 4 ft, 2 ft, and 5.0 ft. Casing depth is 59.9 ft BGS (65.45 – [3.35 + 2.2]). A tag revealed a depth to bottom of 73.95 ft BGS (79.5 – [3.35 + 2.2]).
15:15	15:35	Add bentonite 6 sks. A tag determined a depth of 61.65 ft BGS (67.2 – [3.35 + 2.2]).
15:35	16:30	Secure site and exit TX Tank Farm. Conduct discussion regarding field operations.

REPORT BY: DE Skoglie
TITLE: Field Team Lead
SIGNATURE: David E. Skoglie

REVIEWED BY: MG Gardner
TITLE: Project Manager DATE: 10-9-02
SIGNATURE: MGGardner

Duratek Federal Services, Inc., Northwest Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

WELL I.D.: C3830	*WELL NUMBER*: N/A	*REPORT NUMBER*: 91	*DATE*: September 18, 2002 Wednesday
CONTRACT NUMBER: 8248-55	*START CARD NO*: S00630	*RIG MODEL/NO*: SIMCO 5000 (Rig 106)	
PURPOSE: Daily Safety meeting. Borehole decommissioning and perk test.	*REFERENCE*: DFSNW-DOW-006, Rev. 0	*LOCATION*: TX Tank Farm, 200 West	

REFERENCE MEASURING POINT: Steel Plate

TOTAL SHIFT FOOTAGE: 19.05 ft. (decommissioning)

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
7.0 " OD	NA	CS	Shoe, 7.5 " OD	59.90 ft	40.1 ft.

BORING DEPTH:
START: 61.65 ft
END: 42.6 ft

START TIME: 0700
END TIME: 1630
CONTRACTOR TIME: 0.5
TOTAL TIME: 9.5

DOCUMENTED DOWNTIME

Health physics – 1.0 hrs.

WEATHER CONDITIONS (373-2716)

07:33 Temperature – 44F; Wind – E @ 3; Barometric pressure 29.29; Humidity – 53%.

CASING SUMMARY

Bottom of 7 " OD casing (start of shift)	= 59.9 ft.
Bottom of 7" OD casing (end of shift)	= 40.1 ft.
Casing (7 in OD) stick up (end of shift)	= 2.0 ft.
Total Casing (end of shift)	= 45.45 ft.

SAMPLE SUMMARY

N/A

PERSONNEL:
OPERATOR: KC Olson
DL Curry/DE Morris
WA LICENSE #: 1217
OTHER: D Skoglie
K Johnson (Optr/PIC)
K Hartelius (HPT)
K. Flower/R. Sharpe
K. Young/F. Hall

TIME FROM	TIME TO	DESCRIPTION OF OPERATIONS/REMARKS
07:00	08:25	Conduct daily and weekly safety meeting. Complete equipment inspection with no deficiencies. 07:32 the Work Package is on location.
08:25	08:40	Back pull casing to 0.9 S.U. Casing @ 56.2 ft BGS. A tag revealed a depth of 61.7 ft BGS (65.95 – [3.35 + 0.9]) 08:37 hrs. Add bentonite pellets (2/3 bucket). Tag recorded a depth to bottom of 59.95 ft BGS.
08:40	10:01	Run tremie to a depth of 57.45 ft BGS. Casing shoe @ 56.2 ft BGS. Add 2 gallons water. Hydrate 08:50 – 10:01 hrs.
10:01	10:14	E-tape reading determined 0.8 feet water in bore-hole. Add 10 – 30 sand (1/2 bucket). A tag determined a depth of 59.05 ft BGS (65.0 – [3.35 + 2.6]).
10:14		Add 4 gallons water and monitor test as follows:

Time	Tape Measurement	BGS Measurement	Time	Tape Measurement	BGS Measurement
10:16	62.96	57.01	10:17	62.97	57.02
10:18	62.98	57.03	10:19	62.98	57.03
10:20	62.98	57.03	10:21	62.99	57.04
10:22	62.99	57.04	10:23	62.99	57.04
10:24	62.99	57.04	10:25	63.0	57.05
10:26	63.0	57.05	10:27	63.0	57.05
10:32	63.02	57.07	10:37	63.04	57.09
10:42	63.05	57.10	10:47	63.06	57.11
10:52	63.08	57.13	10:57	63.10	57.15
11:02	63.12	57.17	11:07	63.17	57.17
11:12	63.15	57.20	11:17	63.17	57.22
11:27	63.18	57.23	11:37	63.21	57.26
11:47	63.25	57.30	11:57	63.26	57.31

11:57	12:53	Terminate test (Mr. Syndor). Secure site. Lunch 12:23 – 12:53
12:53	13:32	Pull tremie from boring. Backpull casing (5.0) 55.45 – (3.35 + 2.0) = 50.1 ft BGS. Tag revealed a depth to bottom measurement of 58.75 ft BGS (64.1 – [3.35 + 2.0]). Add 1 sk chips. Tag recorded a depth of 56.25 ft BGS (61.6 ft – [3.35 + 2.0]). Add ½ sk bentonite, a tag recorded 55.25 ft BGS (60.6 – [3.35 + 2.0]). Add 10 –30 sand (5 gallon). A tag determined bottom @ 53 ft BGS (58.35 – [3.35 + 2.0]).
13:32	14:25	Pre-mark length of tensiometer cable. Run tremie through casing shoe. Place tensiometer in boring. Slurry sand and water (2.5 gallons each. A tag determined a depth to 51.85 ft BGS (57.2 – [3.35 + 2.0]). Pull casing 5.0, casing @ 48.8 ft BGS (55.45 – [3.35 + 3.3]). Add sand and water slurry (2.5 gallons each). A tag showed a DTB of 51.15 ft BGS (57.8 – [3.35 + 3.3]).
14:25	15:12	Add sand 2.3 gallons. A tag determined a DTB of 50.15 ft BGS (56.8 – [3.35 + 3.3]). Pull casing (5.0). Pulling pressure on the hydraulic jacks is 150 psig. Casing @ 40.1 ft BGS (45.45 – [3.35 + 2.0]). A tag showed a DTB of 49.95 ft BGS (55.3 – [3.35 + 2.0]).
15:12	16:30	Add 4 sks bentonite. A DTB measurement determined 42.6 ft BGS (47.95 – [3.35 + 2.0]). Casing @ 40.1 ft BGS. Secure site.

REPORT BY: DE Skoglie
TITLE: Field Team Lead
SIGNATURE: David E. Skoglie

REVIEWED BY: MG Gardner
TITLE: Project Manager DATE: 10-9-02
SIGNATURE: MGGardner

Duratek Federal Services, Inc., Northwest Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

WELL I.D.: C3830	*WELL NUMBER*: N/A	*REPORT NUMBER*: 92	*DATE*: September 19, 2002 Thursday
CONTRACT NUMBER: 8248-55	*START CARD NO*: S00630	*RIG MODEL/NO*: SIMCO 5000 (Rig 106)	
PURPOSE: Daily Safety meeting. Borehole decommissioning.	*REFERENCE*: DFSNW-DOW-006, Rev. 0	*LOCATION*: TX Tank Farm, 200 West	
REFERENCE MEASURING POINT: Steel Plate		*TOTAL SHIFT FOOTAGE*: 42.6 ft. (decommissioning)	

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
7.0 " OD	NA	CS	Shoe, 7.5 " OD	40.1 ft	0.0 ft.

BORING DEPTH: START: 42.6 ft
END: 0.0 ft

START TIME: 0700
END TIME: 1630
CONTRACTOR TIME: 0.5
TOTAL TIME: 9.5

DOCUMENTED DOWNTIME

Minimal

WEATHER CONDITIONS (373-2716)

Temperature 59F; Wind N 7; Humidity 74%; Barometric pressure 29.24.

CASING SUMMARY

Bottom of 7 " OD casing (start of shift)	= 40.6 ft.
Bottom of 7" OD casing (end of shift)	= 0.0 ft.
Casing (7 in OD) stick up (end of shift)	= 0.0 ft.
Total Casing (end of shift)	= 0.0 ft.

SAMPLE SUMMARY

N/A

PERSONNEL:
OPERATOR: KC Olson
DL Curry/DE Morris
WA LICENSE #: 1217
OTHER: D Skoglie
K Johnson (Optr/PIC)
R. Ancelet (HPT)
K. Flower/R. Sharpe
K. Young/F. Hall

TIME FROM	TO	*DESCRIPTION OF OPERATIONS/REMARKS*
07:00	07:50	Conduct daily safety meeting. Complete equipment inspection with no deficiencies.
07:50	08:35	Pull casing 5.0 and 5.0. Casing depth is 29.9 ft BGS (35.45 – [3.35 + 2.2]). A tag revealed a depth to bottom measurement of 42.25 ft BGS (47.9 – [3.35 + 2.3]). Add 5 sks bentonite. A tag determined depth to be 32.25 ft BGS.
08:35	09:10	Pull casing 5.01 and 5.0. Casing depth is 19.89 ft BGS (25.44 – [3.35 + 2.2]). A tag revealed a depth to bottom measurement of 32.2 ft BGS (37.75 – [3.35 + 2.2]). Add 5 sks bentonite. A tag determined depth to be 22.45 ft BGS (28.0 – [3.35 + 2.2]).
09:10	10:10	Pull casing 5.0. Casing depth is 15.29 ft BGS (20.44 – [3.35 + 1.8]). Radiological contamination was found on this section of casing. The HPT stated 450 cts/minute (non-smearable). This section of casing was double sleeved and secured in TX Tank Farm.
10:10	11:25	Pull casing 5.0. Casing depth is 9.99 ft BGS (15.44 – [3.35 + 2.1]). A tag revealed a depth to bottom measurement of 22.35 ft BGS (27.8 – [3.35 + 2.1]). Add 5 3/4 sks bentonite. A tag determined depth to be 10.6 ft BGS (15.25 – [3.35 + 1.3]). Add sand (10 – 30) 4 gallons. A tag determined depth to bottom @ 9.0 ft BGS (13.65 – [3.35 + 1.3]).
11:25	11:47	Tensiometer placed in borehole. Placed (slurried) 5 gallon water through tremie and 5 gallons sand through casing. A tag depth to bottom is 7.45 ft BGS (12.0 – [3.35 + 1.2]). Add bentonite 1 gallon. A tag determined depth to bottom is 6.9 ft BGS (11.45 – [3.35 + 1.2]).
11:47	12:20	Add 2.8 gallons sand. Tag sand @ 5.85 ft BGS. Tensiometer placed in borehole. Placed (slurried) 5 gallon water through tremie and 5 gallons sand through casing. A tag depth to bottom is 4.35 ft BGS (11.7 – [3.35 + 4.0]). Pull casing 1 ft. Add sand 3.3 gallons. A tag determined depth to bottom is 2.9 ft BGS (11.25 – [3.35 + 5.0]). Add bentonite 1.7 gallons. Depth to bottom is 2.15 ft BGS (10.5 – [3.35 + 5.0]). Pull casing, depth is 1.59 ft BGS (10.44 – [3.35 + 5.5]).
12:20	13:50	Borehole is filled with natural material. Borehole is decommissioned/completed. BSE personnel worked through lunch to finish completion. The wind is expected to pick u.
13:50	14:30	lunch
14:30	16:30	Remove and disassemble remaining casing string (shoe and short sections). Area is secured.

REPORT BY: DE Skoglie
TITLE: Field Team Lead
SIGNATURE: David E. Skoglie

REVIEWED BY: MG Gardner
TITLE: Project Manager DATE: 10-9-02
SIGNATURE: MGard

Duratek Federal Services, Inc., Northwest Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

WELL I.D.: C3830	*WELL NUMBER*: N/A	*REPORT NUMBER*: 93	*DATE*: September 20, 2002 Friday
CONTRACT NUMBER: 8248-55	*START CARD NO*: S00630	*RIG MODEL/NO*: SIMCO 5000 (Rig 106)	
PURPOSE: Daily Safety meeting. Equipment survey and demobilization.	*REFERENCE*: DFSNW-DOW-006, Rev. 0	*LOCATION*: TX Tank Farm, 200 West	
REFERENCE MEASURING POINT: Steel Plate		*TOTAL SHIFT FOOTAGE*: 0.0 ft.	

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
7.0 " OD	NA	CS	Shoe, 7.5 " OD	0.0 ft	0.0 ft.

BORING DEPTH:
START: 0.0 ft
END: 0.0 ft

START TIME: 0700
END TIME: 15:30
CONTRACTOR TIME: 0.5
TOTAL TIME: 8.5

DOCUMENTED DOWNTIME

Operator/Health Physics – 4 hrs.

WEATHER CONDITIONS (373-2716)

N/A

CASING SUMMARY

Bottom of 7 " OD casing (start of shift)	= 0.0 ft.
Bottom of 7" OD casing (end of shift)	= 0.0 ft.
Casing (7 in OD) stick up (end of shift)	= 0.0 ft.
Total Casing =	= 0.0 ft.

SAMPLE SUMMARY

N/A

PERSONNEL:
OPERATOR: KC Olson
DL Curry/DE Morris
WA LICENSE #: 1217
OTHER: D Gostovich
K Johnson (Optr/PIC)
R. Ancelet (HPT)

TIME FROM	TO	*DESCRIPTION OF OPERATIONS/REMARKS*
07:00	07:30	Conduct daily safety meeting. A discussion was held regarding anticipated activities. No operator coverage today, which means that the fork lift can not be operated.
07:30	08:30	PIC arrives with work package @ 08:00 hrs.
08:30		Contractor enters TX Tank Farm. The jacks were moved to the work platform. Support equipment was placed on pallets.
	12:00	The TX Tank Farm gate was locked.
12:00	12:30	Lunch
12:30		BSE loaded miscellaneous on the flatbed and hauled to the yard. Equipment was cleaned and put away.
	15:30	Documentation was completed. Area secured.

REPORT BY: DE Gostovich
TITLE: Field Team Lead
SIGNATURE: David E. Skoglie for

REVIEWED BY: MG Gardner
TITLE: Project Manager DATE: 10-9-02
SIGNATURE: MGGard

Duratek Federal Services

Duratek Federal Services, Inc., Northwest Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

WELL I.D.: C3830	*WELL NUMBER*: N/A	*REPORT NUMBER*: 94	*DATE:* September 23, 2002 Monday
CONTRACT NUMBER: 8248-55	*START CARD NO*: S00630	*RIG MODEL/NO*: SIMCO 5000 (Rig 106)	
PURPOSE: Daily Safety meeting. Equipment survey and demobilization.	*REFERENCE*: DFSNW-DOW-006, Rev. 0	*LOCATION*: TX Tank Farm, 200 West	
REFERENCE MEASURING POINT: Steel Plate		*TOTAL SHIFT FOOTAGE*: 0.0 ft.	

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
7.0 " OD	NA	CS	Shoe, 7.5 " OD	0.0 ft	0.0 ft.

BORING DEPTH:
START: 0.0 ft
END: 0.0 ft

START TIME: 0700
END TIME: 16:30
CONTRACTOR TIME: 0.5
TOTAL TIME: 9.5

DOCUMENTED DOWNTIME

N/A

WEATHER CONDITIONS (373-2716)

N/A

CASING SUMMARY

Bottom of 7 " OD casing (start of shift)	= 0.0 ft.
Bottom of 7" OD casing (end of shift)	= 0.0 ft.
Casing (7 in OD) stick up (end of shift)	= 0.0 ft.
Total Casing =	= 0.0 ft.

SAMPLE SUMMARY

N/A

PERSONNEL:
OPERATOR: KC Olson
DL Curry/DE Morris
WA LICENSE #: 1217
OTHER: D Gostovich
K Johnson (Optr/PIC)
R. Sharp
R. Ancelet (HPT)
K. Hartelius

TIME FROM	TO	*DESCRIPTION OF OPERATIONS/REMARKS*
07:00	07:45	Conduct daily safety meeting. A discussion was held regarding anticipated activities.
07:45		Contractor enters TX Tank Farm. The jacks were moved to the work platform. All pipe and support equipment was staged near the exit gate. The jacks were removed from the work platform.
	10:00	The drill unit's mast was layed over and secured.
10:00	11:30	The drill trailer was moved to the gate by the Teamster. Health Physics started the survey of the drill unit.
11:30	12:20	Lunch
12:20		The matting, plastic, and berm material was wrapped up and discarded (non-radiological waste).
		The drill unit's survey was completed @ 15:30 hrs. The drill trailer was moved out of the TX Tank Farm.
	15:45	Area secured. The TX Tank Farm gate was locked.
15:45	16:30	BSE worked on the drill unit.

REPORT BY: DE Gostovich
TITLE: Field Team Lead
SIGNATURE: David E. Skoglie Jr

REVIEWED BY: MG Gardner
TITLE: Project Manager DATE: 10-9-02
SIGNATURE: MGGardner

Duratek Federal Services, Inc., Northwest Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

WELL I.D.: C3830	*WELL NUMBER*: N/A	*REPORT NUMBER*: 95	*DATE*: September 24, 2002 Tuesday
CONTRACT NUMBER: 8248-55	*START CARD NO*: S00630	*RIG MODEL/NO*: SIMCO 5000 (Rig 106)	
PURPOSE: Daily Safety meeting. Equipment survey and demobilization.	*REFERENCE*: DFSNW-DOW-006, Rev. 0	*LOCATION*: TX Tank Farm, 200 West	
REFERENCE MEASURING POINT: Steel Plate		*TOTAL SHIFT FOOTAGE*: 0.0 ft.	

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
7.0 " OD	NA	CS	Shoe, 7.5 " OD	0.0 ft	0.0 ft.

BORING DEPTH: START: 0.0 ft
END: 0.0 ft

START TIME: 0700
END TIME: 16:30
CONTRACTOR TIME: 0.5
TOTAL TIME: 9.5

DOCUMENTED DOWNTIME

N/A

WEATHER CONDITIONS (373-2716)

N/A

CASING SUMMARY

Bottom of 7 " OD casing (start of shift)	= 0.0 ft.
Bottom of 7" OD casing (end of shift)	= 0.0 ft.
Casing (7 in OD) stick up (end of shift)	= 0.0 ft.
Total Casing =	= 0.0 ft.

SAMPLE SUMMARY

N/A

PERSONNEL:
OPERATOR: KC Olson
DL Curry/DE Morris
WA LICENSE #: 1217
OTHER: D Gostovich
K Johnson (Optr/PIC)
R. Sharp
R. Ancelet (HPT)
K. Hartelius

TIME FROM	TO	*DESCRIPTION OF OPERATIONS/REMARKS*
07:00	07:30	Conduct daily safety meeting. A discussion was held regarding anticipated activities.
07:30	11:30	Contractor enters TX Tank Farm. Equipment is loaded on the flatbed and equipment trailer and hauled to the Duratek yard.
11:30	12:20	Lunch
12:20		Demobilized equipment from the TX Tank Farm. Items were hauled to Duratek's yard where items were cleaned and organized.
	16:30	Area Secured.

REPORT BY: DE Gostovich
TITLE: Field Team Lead
SIGNATURE: David E. Shoglin for

REVIEWED BY: MG Gardner
TITLE: Project Manager DATE: 10-9-02
SIGNATURE:

Duratek Federal Services, Inc., Northwest Operations

DRILLING AND SAMPLING (PERCUSSION) DAILY WORK RECORD

Page 1 of 1

WELL I.D.: C3830	*WELL NUMBER*: N/A	*REPORT NUMBER*: 96	*DATE*: September 25, 2002 Wednesday
CONTRACT NUMBER: 8248-55	*START CARD NO*: S00630	*RIG MODEL/NO*: SIMCO 5000 (Rig 106)	
PURPOSE: Daily Safety meeting. Equipment survey and demobilization. Last Report.	*REFERENCE*: DFSNW-DOW-006, Rev. 0	*LOCATION*: TX Tank Farm, 200 West	
REFERENCE MEASURING POINT: Steel Plate		*TOTAL SHIFT FOOTAGE*: 0.0 ft.	

CONSTRUCTION DESCRIPTION: N/A

CASING SIZE	SET-AT DEPTH	TYPE CASING	DRIVE POINT DIMENSION	START DEPTH	END DEPTH
7.0 " OD	NA	CS	Shoe, 7.5 " OD	0.0 ft	0.0 ft.

BORING DEPTH:
START: 0.0 ft
END: 0.0 ft

START TIME: 0700
END TIME: 16:30
CONTRACTOR TIME: 0.5
TOTAL TIME: 9.5

DOCUMENTED DOWNTIME

N/A

WEATHER CONDITIONS (373-2716)

N/A

CASING SUMMARY

Bottom of 7 " OD casing (start of shift)	= 0.0 ft.
Bottom of 7" OD casing (end of shift)	= 0.0 ft.
Casing (7 in OD) stick up (end of shift)	= 0.0 ft.
Total Casing =	= 0.0 ft.

SAMPLE SUMMARY

N/A

PERSONNEL:
OPERATOR: KC Olson
DL Curry/DE Morris
WA LICENSE #: 1217
OTHER: D Gostovich
K Johnson (Optr/PIC)
R. Sharp
R. Ancelet (HPT)
K. Hartelius

TIME FROM	TO	*DESCRIPTION OF OPERATIONS/REMARKS*
07:00	07:30	Conduct daily safety meeting. A discussion was held regarding anticipated activities.
07:30	10:30	Contractor enters TX Tank Farm. Equipment is loaded on the flatbed and equipment trailer and hauled to the Duratek yard. All equipment is removed from the TX Tank Farm.
10:30	11:30	Haul materials/equipment to Duratek's yard.
11:30	12:00	Lunch
12:00		Items were hauled to Duratek's yard where items were cleaned and organized.
	16:30	Area Secured.
		NA

REPORT BY: DE Gostovich
TITLE: Field Team Lead
SIGNATURE: David E. Shoglin for

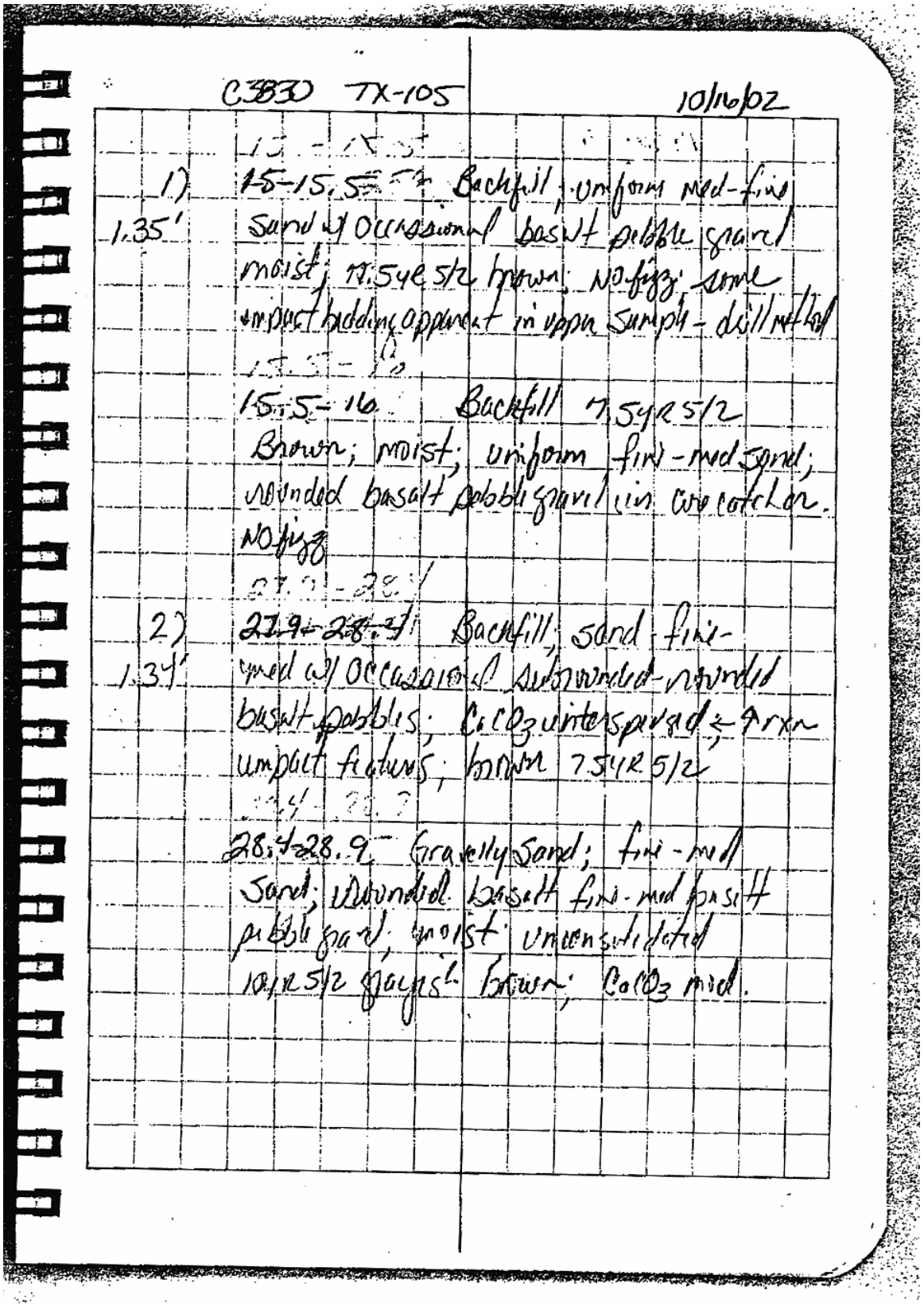
REVIEWED BY: MG Gardner
TITLE: Project Manager DATE: 10-9-02
SIGNATURE: MGGardner

This page intentionally left blank.

APPENDIX B

GEOLOGIC SAMPLE LOGS

This page intentionally left blank.



C3830 TX-105 10/16/02

1) 1.35' 15-15.5 Backfill, uniform med-fine sand w/ occasional basalt pebble gravel moist, 7.5yr 5/2 brown, NO fizz, some impact bedding apparent in vapor sump - drill method

15.5-16 Backfill 7.5yr 5/2 Brown; moist, uniform fine-med sand; rounded basalt pebble gravel (in cuttings). NO fizz

2) 1.3' 27.9-28.3 Backfill, sand fine-med w/ occasional subrounded-rounded basalt pebbles; CaCO3 interspersed; trace impact features; brown 7.5yr 5/2

28.3-28.9 Gravelly Sand; fine-med sand; rounded basalt fine-med basalt pebble gravel; moist; unconsolidated 10yr 5/2 grayish brown; CaCO3 mod.

3) 40.9–41.9

(40.9–41.4): Gravelly Sand
10YR 5/2 grayish brown; moist
uncon; impart artifact; rounded
basalt f-m pebb grav.; mod.
fizz

(41.4–41.9) Sand; backfill;
uncon; moist; uniform; some
coarser basalt sand; 10YR 4/2
dark grayish brown; occasional
basalt pebb; + fizz

4) ~~46–47.5~~
~~46–46.5~~ Gravelly Sand
uncons, fine-med sand, rounded
basalt pebbles; some moist,
10YR 5/2 grayish brown, strong fizz

46.5–47.05 Gravelly Sand
uncon; fine-med sand;
same as above; mod. fizz

5) ~~47.5–48.5~~ Backfill
1.5'
47.5–48: Gravelly Sand
moist, f-m sand; rounded
basalt pebble gravel; uncon.
10YR 4/2 dark grayish brown;
mod. fizz

~~48~~ 48–48.5: Gravelly Sand; as
above. same color, moist
mod. rxn

6) 53–54

53–53.5 Slightly gravelly Sand
f-m sand; laminated
silt and f-m sands
on bottom. Impart drilling
features; mod-strong fizz

contact Bf
Hf


53.5–54 Laminated silt
and f-m sands; basalt,
quartzose feldspathic, uniform
10YR 6/2 lt brownish gray
mod rxn; slightly moist

7) 57-58 — 57.1-58.5

~~57-57.5~~ Sand
f-m sand; uniform; dry
basalt/qtz fd.; 10YR 7/2
light gray; mod → strong
fizz

~~57.5-58.3~~ Sand; uniform;
fine to med sand; dry;
basalt/qtz feldspathic;
mod rxn.; 10YR 7/2 light
gray;

8) 58.3-59.3

58.3-58.8: Laminated
silt and f-m sand
slightly moist; 10YR 5/2
grayish brown; same
min as above; mod fizz

(58.8-59.3) Contact w/ coarse
sands at bottom of core catcher
Laminated silt and fine sands
in contact w/ coarse sands
at base; 10YR 5/2 grayish
brown; slightly moist

mod. fizz

9) 66.1-67.1

~~66.1-66.6~~ Sand, very
dry; 10YR 7/1-7/2 light gray;
mostly med. sand; basalt/
qtz feldspathic; uniform;
some fine s, n silt; mod. fizz
low basalt %

~~66.6~~-67.1 Uniform med sand;
dry; 10YR 7/2 light gray; same
min as above; mod. rxn.
low basalt %

10) 72-73

72-72.5 Sand: med-fine
grain; 10YR 7/2 light gray
Uniform; some coarser
basalt sand; mod rxn.
Very dry

72.5-73 Sand; as above;
uniform; mod. fizz
V. dry; low b%

11) ~~77-78~~ 77-77.5 (~~77-77.5~~) Sand
Some silt intermixed
in mid of sample;
20-30% basalt, 70-80% quartz feldspathic — predom. med-fine grain;
v. dry; unconsolidated
mod rxn; med. sand mainly
basalt; 10YR 7/2 light gray.

77.5-78
(~~77.5-78~~) Sand - some silt
predominately med sand
w/ some silt lamina; dry;
10YR 6/2 lt brownish gray;
20-30% B, 70-80% qtz fels
mod. rxn.

12) 80.9-81.9 (80.9-81.4) Sand
mainly fine some med
consisting primarily of
basalt, 70% qtz felsic
30% basalt · dry
10YR 7/2 light gray,
mod-strong rxn
(81.4-81.9) SAME AS ABOVE
mod rxn

13) 86.1-87.1
(86.1-86.6) Sand; predomin.
med. grain w/ some coarse basalt;
coarsening downward; transition
to higher basalt % 40%, 60% qtz
feldspar; some grain oxidation;
uniform; slight bedding observed.
mod-strong rxn; 10YR 5/2 grayish
brown

(86.6-87.1) silt bed on top of med-fine
sand; sharp contact; silt ~1"
thick; sand 40% basalt
60% qtz felsp.; 10YR 6/2 light
brownish gray; mod-strong fizz

14) 99-100 (99-99.5)
fn-med sand mod-strong
rx; laminated; 10YR 6/2
lt brownish gray
20% mafic.
(99.5-100) Sand f-med sand,
some lamination; uniform;
dry; 40% B, 60% qtz fld.
some fine sand; 10YR 5/2 mod-strong

Sample was in Ouratcher

100.36 + 2 in. Sample Sand in contact w/ 10yr 4/3 dark brown silt. moist; high fizz rxn; Strong

Cold Creek Contact 100.4?

15) 100.3–101.3

(100.3–100.8) Sharp contact of Stuff w/ laminated silt 10yr 4/3 Brown grading to fine sand; mod-strong rxn.

100.3

100.8

(100.8–101.3) Laminated silt, f. sand, v.f. sand, pull silt plug out of caricature; strong rxn; 10yr 5/3 brown

100.8

101.3

16) 103–104

(103–103.5) Stuff on top of compact silt: 10yr 5/3 brown

Silt is laminated

Stuff consists of f–m sand. mod-strong rxn

(103.5–104) Massive silt compact 10yr 5/3 brown strong fizz

17) 107.9–108.4

(107.9–108.4) silt w/ some very fine sand 10yr 4/3 pale brown; uniform. Strong rxn.

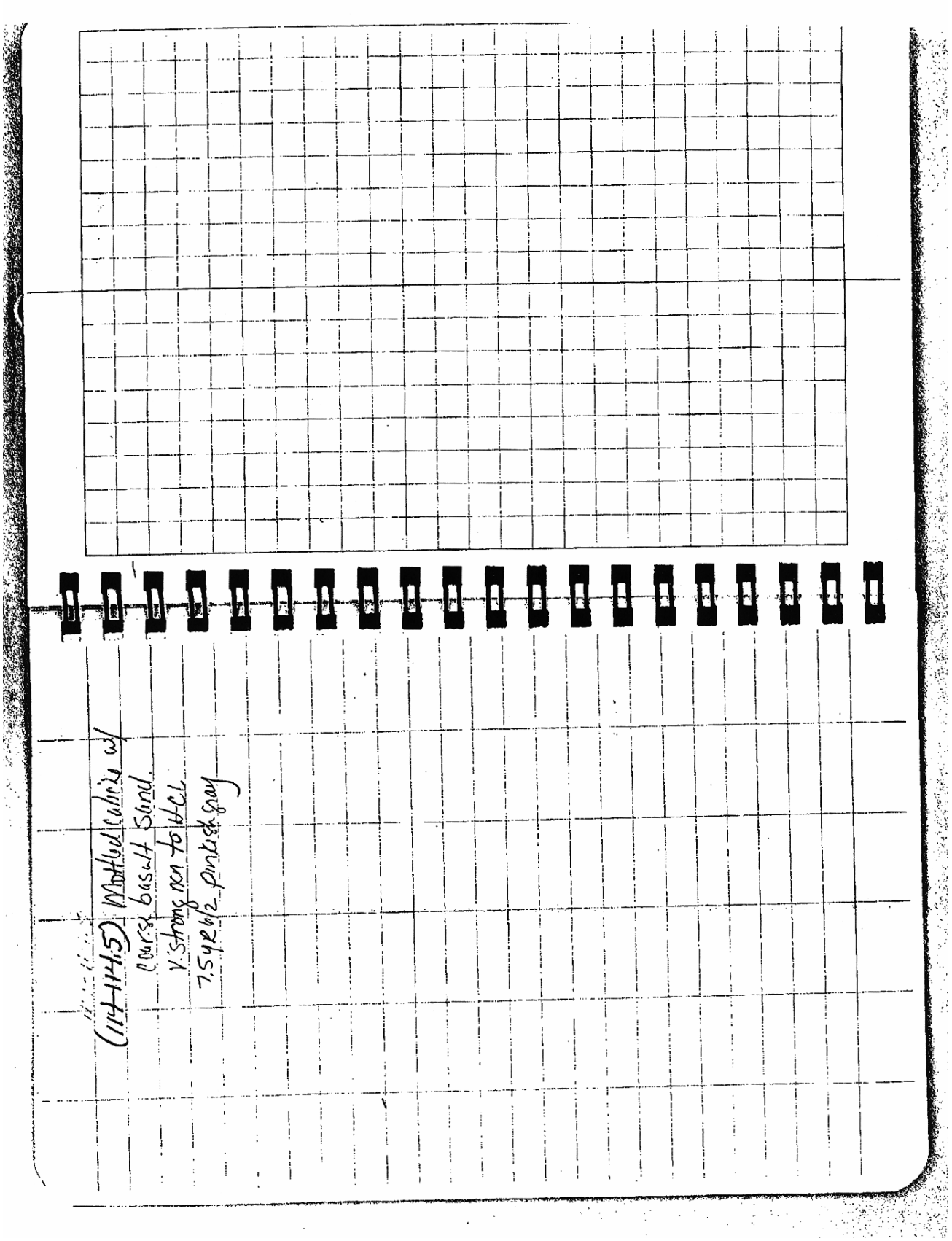
(108.4–108.9) Silt massive 10yr 5/3 brown, uniform Strong

18) 113.5–114.5

(113.5–114) Silt in contact w/ Caliche at 113.8'

Caliche is mottled, compact; Very strong rxn

Some coarse grained basalt chunks 7.5yr pinkish gray brown



APPENDIX C

GEOPHYSICAL LOGS

This page intentionally left blank.

Pacific Northwest Geophysics
4200 West 19th Ave
Kennewick, WA 99338
(509) 735-3963

"No Job Is Too Large or Too Small"

September 17, 2002

Mr. Kent Reynolds
Duratek Federal Services, Inc.
345 Hills Street
Richland, WA 99352

Dear Mr. Reynolds,

Re: SUBCONTRACT NO. A00536, Task Order 18 Mod 2
TX-105 Tank Farm Borehole (C3830) Survey Data Processing

Enclosed are the deliverables for the Task Order 18 to subcontract A000536. The deliverables are HPGe spectral gamma and Neutron Moisture survey results for C3830-TX-105 and include:

- Moisture calculation from MathCad.
  - MathCad results identify: borehole ID, calibration date, coefficients, and casing correction. No density correction was applied.
  - Casing correction factor (multiplier) is 1.339.
  - Calibrations coefficients are $\%vf=0.00004354CR^{2.222}$ (6-inch calibration model)
  - MathCad output file "Moist.dat" is ASCII. Tabular columns are: depth, moisture, raw count rate, and count rate uncertainty (1 sigma, percent).
- Radionuclide concentration from LgCalc.
  - All gamma photo peaks above MDL were identified to assure all radionuclides are included in the analysis results. Photo peak uncertainties less than 30% are above MDL levels. Radionuclide identification phase is in sub-directories "-RadID".
  - Casing correction information is shown on the Borehole Survey Log Header.
  - Calibration coefficients are: $\varepsilon(E)=1/(11.19E^{0.1068})$ as per ref. RLSG07000S01.0 calib. date Oct. 29, 2001; report date Jun. 3, 2002)
  - Minimum Detection Levels are listed in the Log Analysis Summary Report.
- Final survey results in Microsoft Word ".doc" format. The results file contains:
  - Borehole Survey Log Header (Moisture & Gamma surveys merged as one form)
  - Log survey results plot. One page containing both Moisture and Gamma results.
  - Log Analysis Summary Report (Moisture & Gamma merged)

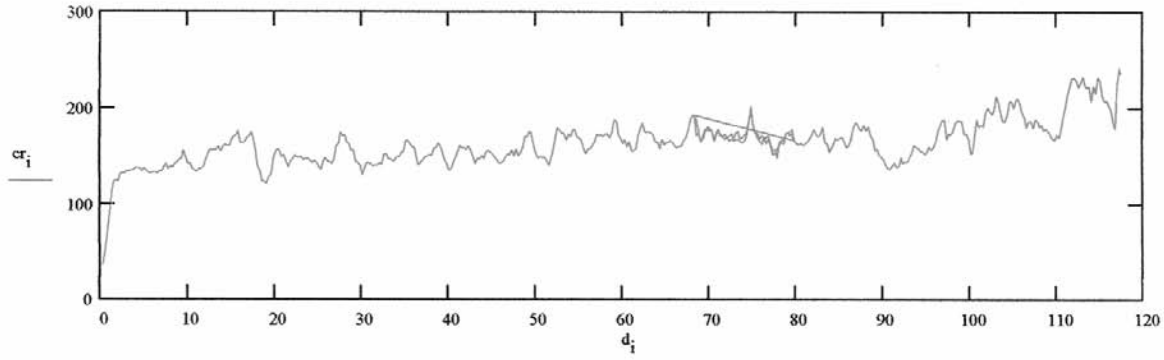
Thank You,

Randall Price

Randall Price

Moisture Calculation (Casing Corrected & NO Density Correction)

$A := READPRN("0gross2.dat")$ $d := A^{<0>}$ $cr := A^{<1>}$ $n1 := last(d)$ $i := 0..n1$ Hole ID: C3830 TX-105



Casing Attenuation (beyond calibration model) : $t := .590 + \frac{0}{2}$ Thickness (inches) $t = 0.59$

$attn := 1.311 - .9560 \cdot t$ $attn = 0.747$ $f := \frac{1}{attn}$ $f = 1.339$ Casing Correction Factor

$a6 := .00004354$ $\alpha 6 := 2.222$
$a8 := .00002198$ $\alpha 8 := 2.470$
$ax := .00001038$ $\alpha x := 2.762$

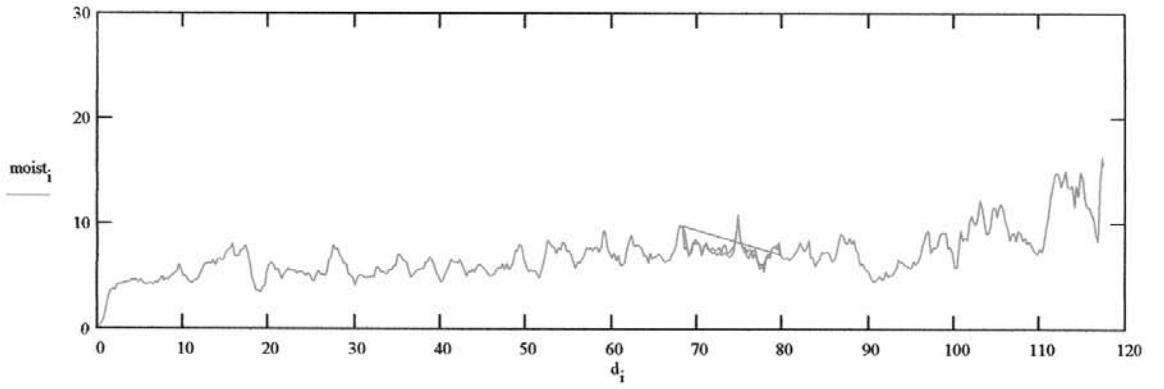
Calibration Coefficients: RLSM00.0 Jan 29, 2002

ax coefficients hole size = 13.375"

$crcor_i := cr_i \cdot f$ **Casing Correction**

$moist_i := a6 \cdot (crcor_i)^{\alpha 6}$ Compute moisture

Hole Size: 6.56 in (OD)



$time := 15$ Count times secs.

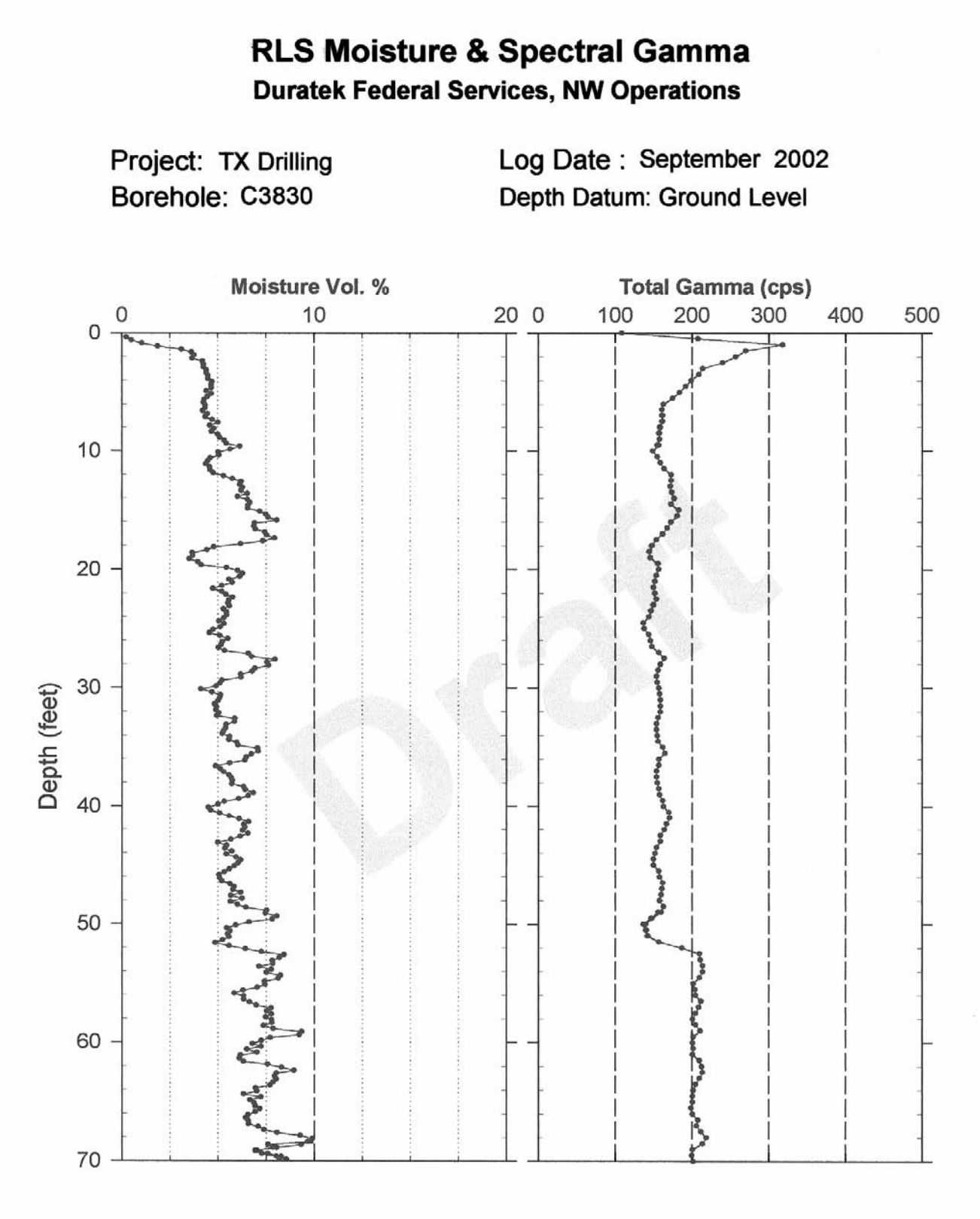
$\sigma_i := if\left(cr_i > 0, \frac{100}{\sqrt{cr_i \cdot time}}, 0\right)$ Uncertainty (%, 1 sigma)

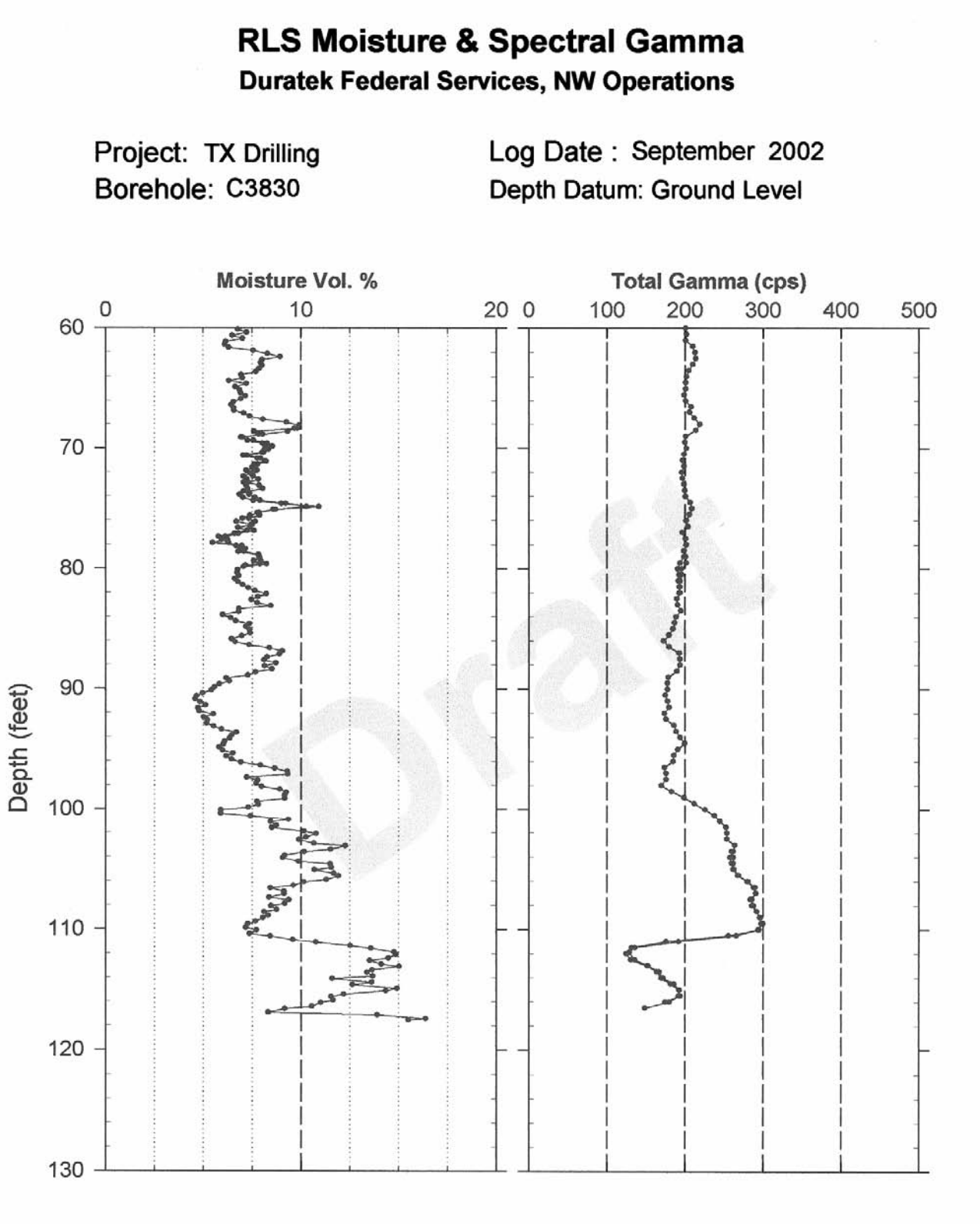
$out^{<0>} := d - \frac{0}{12} \cdot 0$ $out^{<1>} := moist$ $out^{<2>} := cr$ $out^{<3>} := \sigma$

Moisture (% volume fraction)
Depth correction may be applied.

$WRITEPRN("moist.dat") := out$

Calc_Moist_MCad8.mcd 9/10/2002 Page - 1


RLS Moisture & Spectral Gamma
Duratek Federal Services, NW Operations
Project: TX Drilling
Borehole: C3830
Log Date : September 2002
Depth Datum: Ground Level
Moisture Vol. %
0
10
20
Total Gamma (cps)
0
100
200
300
400
500
Depth (feet)
0
10
20
30
40
50
60
70
Draft


RLS Moisture & Spectral Gamma
Duratek Federal Services, NW Operations
Project: TX Drilling
Borehole: C3830
Log Date : September 2002
Depth Datum: Ground Level
Moisture Vol. %
0
10
20
Total Gamma (cps)
0
100
200
300
400
500
Depth (feet)
60
70
80
90
100
110
120
130
Draft

Borehole Survey Log Header

Duratek Federal Services, Inc.

Project: 241-TX-105 Drilling **Borehole:** C3830

Log Types: HPGe Spectral-Gamma & Neutron-Moisture

Borehole Information

Well ID	C3830	Water Depth	None ft	Total Depth	115 ft
Elevation Reference		Elevation	n/a ft		
Depth Reference	Ground Level	Casing Stickup	4.75 ft		
Casing Diameter	5.81 in I.D.	Depth Interval	0to116.75ft	Thickness	0.59 in
Casing Diameter	in I.D.	Depth Interval	ft	Thickness	in

Logging Information

Log Type	Neutron-Moisture Gauge		HPGe Spectral-Gamma	
Logging Unit	RLS-1		RLS-1	
Logging Engineer	J. Meisner		J. Meisner	
Instrument ID	RLSM00.0		RLSG07000S01.0	
Instrument Calibration Date	Jan. 29, 2002		Oct. 29, 2001	
Survey Date	Sept. 9, 2002		Sept. 9-12, 2002	
Depth Interval / Prefix	0 to 80 ft	MC05	0 to 9.5 ft	A734
	68 to 117.5 ft	MC06	7 to 52 ft	A735
			49 to 82 ft	A736
			79 to 116.4 ft	A737
			103.5 to 116 ft	Repeat

Analysis Information

Company	Pacific Northwest Geophysics
Analyst	Randall Price
Date	September 16, 2002

Notes: The repeatability (precision) of the Moisture and Gamma surveys is good. No Co-60 was detected in the survey. U-238 was detected from 49 to 69 feet at concentrations less than the MDL of 10 pCi/g. Moisture for 7.0-inch O.D. borehole was computed using the 6.56-inch O.D. calibration model coefficients.

Log Analysis Summary Report

Duratek Federal Services, Inc.

Project:	241-TX-105 Drilling	Well ID:	C3830
Log Type:	Neutron-Moisture & HPGe Spectral Gamma	Log Dates:	Sept. 12, 2002

General Notes:

The log response transitions at the survey top (0 ft) and bottom (115 feet and below) are the result of changes in borehole conditions (i.e. air to surface soils and at bottom from drill stem into drive shoe and into open hole).

The moisture survey shows that the formation moisture content gradually increases from about 5 vf% (volume fraction percent) near the surface to 15 vf% at the bottom of the hole. Decreased moisture content down to 5 vf% and lower concentrations of natural thorium and uranium were encountered between 89 and 93 feet, indicating a change in sediments. The moisture survey is appropriate for identifying changes in the relative moisture content.

The gross gamma increase below 52 feet reflects the transition from backfill material around the tanks into undisturbed sediments below the tanks.

Environmental Corrections: The casing thickness correction (as shown on the Borehole Survey Log Header) was applied to the detector responses before computing the apparent moisture content and radionuclide concentration. No formation density correction was applied since it is assumed to be similar to calibration model densities (approx. 1.76 g/cc). No casing correction was applied to the Total Gamma due to Compton down-scatter interference.

Depth Reference: Zero depth of log survey is at ground level. An error of +0.25 ft in the moisture survey depth resulted from difference in ground surface reference (Driller was using the top of the floor plate [3-inch thick] instead of the plate bottom).

System Performance Verification: The gamma survey pre- and post-log verification was performed using "Coleman #1" mantles. The FWHM (full width at half maximum) resolution for the 583 keV gamma ray photo peak (^{232}Th) were all less than the maximum FWHM resolution of 3.15 keV for probe RLSG07000S01.0 except for the post survey spectra of data set A736 at FWHM=3.25 keV. The overlap sections between survey A736 and the neighboring surveys are excellent and concentrations of the natural radionuclides are within normal ranges. Spectra file A7371026 at 92 feet had broadening of the photo peaks that required manual processing. The logging operator indicated that amplifier gain changes had occurred. The calibration is not compromised and the HPGe surveys are valid.

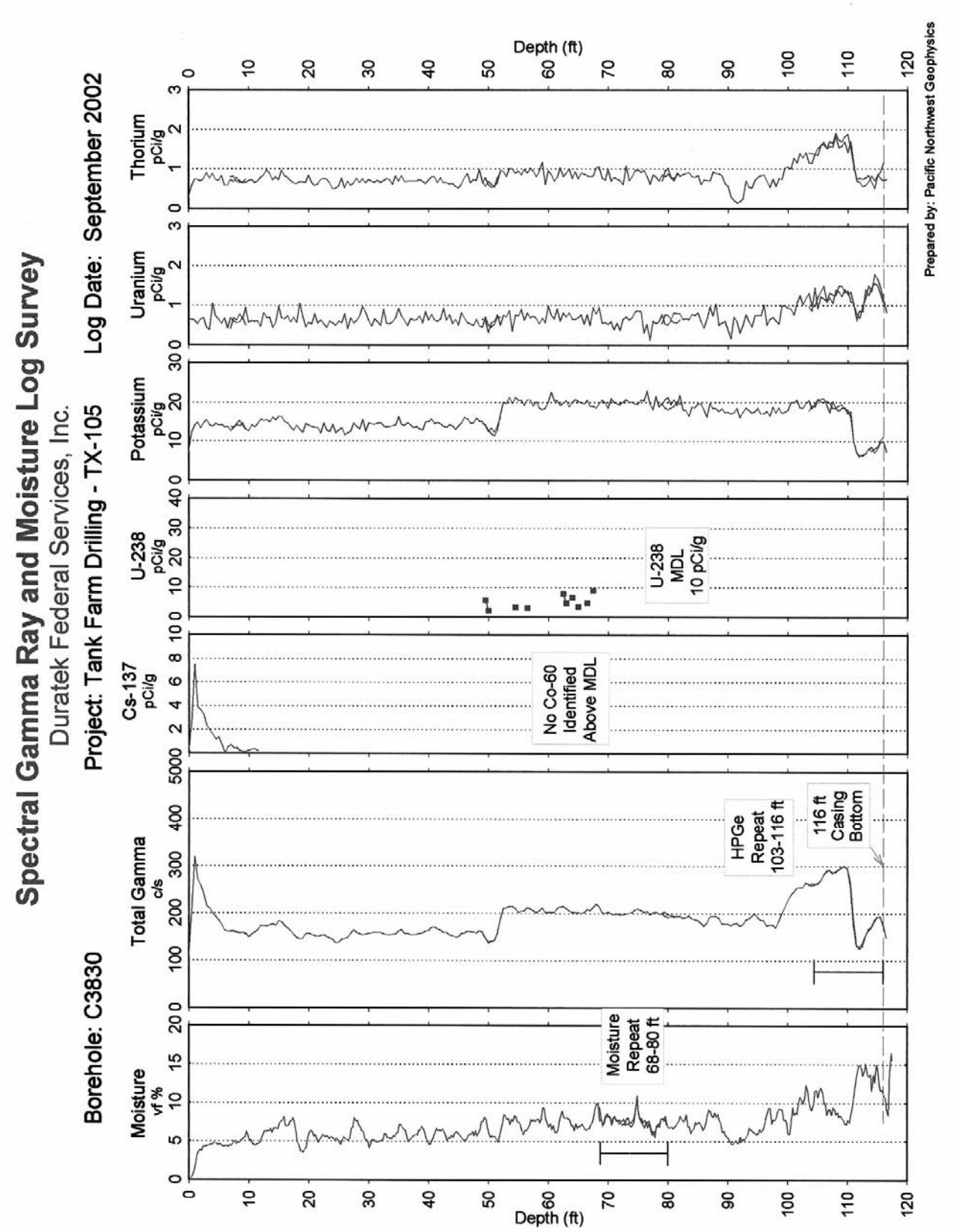
The moisture survey pre- and post-log verification measurements (722 and 700 c/s respectively) were within the range of previous system performance checks.

Repeat Interval: The repeat intervals have excellent agreement with the main log. (Moisture repeat is 68-80 ft.) (Gamma repeat is 103.5-116 ft.)

Radionuclides:

- Cs-137 is present at the surface (0 to 11 feet) at a concentration up to 7.5 pCi/g at 1 ft.
- Co-60 was not detected in the survey.
- U-238 was detected at concentrations less than the MDL level of 10 pCi/g.

	Co-60	Cs-137	U-238
max. Concentration	None	7.5 pCi/g @ 1 ft	< MDL
max. Depth at MDL	n/a	11 ft	n/a
MDL	0.1 pCi/g	0.1 pCi/g	10 pCi/g


Spectral Gamma Ray and Moisture Log Survey
Duratek Federal Services, Inc.
Borehole: C3830
Project: Tank Farm Drilling - TX-105
Log Date: September 2002
Depth (ft)
Thorium pCi/g
Uranium pCi/g
Potassium pCi/g
U-238 pCi/g
U-238 MDL 10 pCi/g
Cs-137 pCi/g
No Co-60 Identified Above MDL
Total Gamma c/s
HPGe Repeat 103-116 ft
116 ft Casing Bottom
Moisture vf %
Moisture Repeat 68-80 ft
Prepared by: Pacific Northwest Geophysics

BOREHOLE SURVEY DATA SHEET

Project:	TX Farm Drilling	Well Name:		Well ID:	C3830
Date:	09/12/02	Location:	TX Tank Farm, South of Tank TX-105		

Notes:

5.0-4.75=.25 meas. Pt in hole w/ top of cablehead

While moving on bottom, zeroed depth on accident. Used backup readout and bottom tag to reset.

Tag bottom at 116.4+1.0+117.4

BOREHOLE LOGGING INFORMATION

Logger:	JAMES E. MEISNER		Logging Unit Configuration:	RLS1	
Depth Datum Reference:	Ground Surface		Instrument Calibration Configuration:	RLSG0700S00.0	
Total Well Depth (ft):	116.75 Source:	Driller	Water Level (ft) :	Dry	Source: Driller
Source for Casing Parameters:	Measured with Calipers				

Casing Diameter (in.):	Wall Thickness (in.):	Type of Metal:	Total Depth (ft):	Stickup (ft):
O.D = 7.0, I.D. = 5.81	0.60	CARBON STEEL	116.75	4.75
Diameter (in.):	Wall Thickness (in.):	Type of Metal:	Total Depth (ft):	Stickup (ft):
None	NA		NA	NA
Diameter (in.):	Wall Thickness (in.):	Type of Metal:	Total Depth (ft):	Stickup (ft):
None	NA		NA	NA
Diameter (in.):	Wall Thickness (in.):	Type of Metal:	Total Depth (ft):	Stickup (ft):
None	NA		NA	NA

File Name Prefix:	Field Disk/Part:	Return Error (in.):	High/Low at (ft):	Field Verifier ID:
A737	A737	1.000	LOW	COLEMAN 1

Pre Log Verification:	Gross c/s:	Background .c/s:	Th 583 keV photo peak FWHM:
	2186.00	1499.00	na
Post Log Verification:	Gross c/s:	Background .c/s:	Th 583 keV photo peak FWHM:
	2156.00	1538.00	

Log Interval:	Fix Speed (fpm):	Move-Stop-Acquire(s {LT/RT}):		
	na	150rt		
Depth Range	Start (ft):	Stop (ft):	Incr (ft):	
	79.00	116.50	0.50	
Log Interval:	Fix Speed (fpm):	Move-Stop-Acquire(s {LT/RT}):		
	na	150rt		
Depth Range	Start (ft):	Stop (ft):	Incr (ft):	
	116.00	103.50	0.50	
Log Interval:	Fix Speed (fpm):	Move-Stop-Acquire(s {LT/RT}):		
Depth Range	Start (ft):	Stop (ft):	Incr (ft):	
Log Interval:	Fix Speed (fpm):	Move-Stop-Acquire(s {LT/RT}):		
Depth Range	Start (ft):	Stop (ft):	Incr (ft):	

LOGGING OPERATIONS WERE PERFORMED AND EQUIPMENT CLEANED AS PER PROCEDURES, 17.0 GEOPHYSICAL LOGGING, DURATEK FEDERAL SERVICES, INC.

Prepared by (print): JAMES E.MEISNER

Signature: James E Meisner

Date: 9/12/02

BOREHOLE SURVEY DATA SHEET

Project:	TX Farm Drilling	Well Name:		Well ID:	C3830
Date:	09/11/02	Location:	TX Tank Farm, South of Tank TX-105		

Notes:

5.0-4.75=.25 meas. Pt in hole w/ top of cablehead

BOREHOLE LOGGING INFORMATION

Logger:	JAMES E. MEISNER	Logging Unit Configuration:	RLS1		
Depth Datum Reference:	Ground Surface	Instrument Calibration Configuration:	RLSG0700S00.0		
Total Well Depth (ft):	116.75 Source: Driller	Water Level (ft):	Dry	Source:	Driller
Source for Casing Parameters:	Measured with Calipers				

Casing Diameter (in.):	Wall Thickness (in.):	Type of Metal:	Total Depth (ft):	Stickup (ft):
O.D = 7.0, I.D. = 5.81	0.60	CARBON STEEL	116.75	4.75
Diameter (in.):	Wall Thickness (in.):	Type of Metal:	Total Depth (ft):	Stickup (ft):
None	NA		NA	NA
Diameter (in.):	Wall Thickness (in.):	Type of Metal:	Total Depth (ft):	Stickup (ft):
None	NA		NA	NA
Diameter (in.):	Wall Thickness (in.):	Type of Metal:	Total Depth (ft):	Stickup (ft):
None	NA		NA	NA

File Name Prefix:	Field Disk/Part:	Return Error (in.):	High/Low at (ft):	Field Verifier ID:
A736	A736	0.000	LOW	COLEMAN 1
Pre Log Verification:	Gross c/s:	Background .c/s:	Th 583 keV photo peak FWHM:	
	1960.00	1287.00	na	
Post Log Verification:	Gross c/s:	Background .c/s:	Th 583 keV photo peak FWHM:	
	2118.00	1490.00		

Log Interval:	Fix Speed (fpm):	Move-Stop-Acquire(s {LT/RT}):		
	na	150rt		
Depth Range	Start (ft):	Stop (ft):	Incr (ft):	
	49.00	82.00	0.50	
Log Interval:	Fix Speed (fpm):	Move-Stop-Acquire(s {LT/RT}):		
Depth Range	Start (ft):	Stop (ft):	Incr (ft):	
Log Interval:	Fix Speed (fpm):	Move-Stop-Acquire(s {LT/RT}):		
Depth Range	Start (ft):	Stop (ft):	Incr (ft):	
Log Interval:	Fix Speed (fpm):	Move-Stop-Acquire(s {LT/RT}):		
Depth Range	Start (ft):	Stop (ft):	Incr (ft):	

LOGGING OPERATIONS WERE PERFORMED AND EQUIPMENT CLEANED AS PER PROCEDURES, 17.0 GEOPHYSICAL LOGGING, DURATEK FEDERAL SERVICES, INC.

Prepared by (print): JAMES E.MEISNER

Signature:

Date: 9/11/02

BOREHOLE SURVEY DATA SHEET

Project:	TX Farm Drilling	Well Name:		Well ID:	C3830
Date:	09/10/02	Location:	TX Tank Farm, South of Tank TX-105		

Notes:

5.0-4.75=.25 meas. Pt in hole w/ top of cablehead

BOREHOLE LOGGING INFORMATION

Logger:	JAMES E. MEISNER		Logging Unit Configuration:	RLS1	
Depth Datum Reference:	Ground Surface		Instrument Calibration Configuration:	RLSG0700S00.0	
Total Well Depth (ft):	116.75 Source: Driller		Water Level (ft):	Dry	Source: Driller
Source for Casing Parameters:	Measured with Calipers				

Casing Diameter (in.):	Wall Thickness (in.):	Type of Metal:	Total Depth (ft):	Stickup (ft):
O.D = 7.0, I.D. = 5.81	0.60	CARBON STEEL	116.75	4.75
Diameter (in.):	Wall Thickness (in.):	Type of Metal:	Total Depth (ft):	Stickup (ft):
None	NA		NA	NA
Diameter (in.):	Wall Thickness (in.):	Type of Metal:	Total Depth (ft):	Stickup (ft):
None	NA		NA	NA
Diameter (in.):	Wall Thickness (in.):	Type of Metal:	Total Depth (ft):	Stickup (ft):
None	NA		NA	NA

File Name Prefix:	Field Disk/Part:	Return Error (in.):	High/Low at (ft):	Field Verifier ID:
A735	A735	0.000	LOW	COLEMAN 1

Pre Log Verification:	Gross c/s:	Background .c/s:	Th 583 keV photo peak FWHM:
	2087.00	1420.00	na
Post Log Verification:	Gross c/s:	Background .c/s:	Th 583 keV photo peak FWHM:
	2046.00	1363.00	

Log Interval:	Fix Speed (fpm): na	Move-Stop-Acquire(s {LT/RT}): 150rt		LOGGING OPERATIONS WERE PERFORMED AND EQUIPMENT CLEANED AS PER PROCEDURES, 17.0 GEOPHYSICAL LOGGING, DURATEK FEDERAL SERVICES, INC.
Depth Range	Start (ft): 7.00	Stop (ft): 52.00	Incr (ft): 0.50	
Log Interval:	Fix Speed (fpm):	Move-Stop-Acquire(s {LT/RT}):		
Depth Range	Start (ft):	Stop (ft):	Incr (ft):	Prepared by (print):
Log Interval:	Fix Speed (fpm):	Move-Stop-Acquire(s {LT/RT}):		JAMES E.MEISNER
Depth Range	Start (ft):	Stop (ft):	Incr (ft):	Signature:
Log Interval:	Fix Speed (fpm):	Move-Stop-Acquire(s {LT/RT}):		Date:
Depth Range	Start (ft):	Stop (ft):	Incr (ft):	9/10/02

BOREHOLE SURVEY DATA SHEET

Project:	TX Farm Drilling	Well Name:		Well ID:	C3831
Date:	09/09/02	Location:	TX Tank Farm, Tx105		

Notes:

4.5 to TOC this Should have been 4.75 including the plate

4.88-4.5=0.38 to top of CH(should have been 4.88-4.75=.13)

Ground suface is defined by driller as top of floor plate and is 3" thick

TD-117.20(inc. 3" correction)

analyzed field log was corrected for this .25' error (3")

BOREHOLE LOGGING INFORMATION

Logger:	JAMES E. MEISNER		Logging Unit Configuration:	RLS1	
Depth Datum Reference:	Ground Surface		Instrument Calibration Configuration:	RLSM0.00	MOISTURE WA
Total Well Depth (ft):	116.75 Source:	Driller	Water Level (ft) :	Dry	Source: Driller
Source for Casing Parameters:	Measured with Calipers				

Casing Diameter (in.):	Wall Thickness (in.):	Type of Metal:	Total Depth (ft):	Stickup (ft):
O.D = 7.0, I.D. = 5.81	0.59	CARBON STEEL	116.75	4.50
Diameter (in.):	Wall Thickness (in.):	Type of Metal:	Total Depth (ft):	Stickup (ft):
None	NA		NA	NA
Diameter (in.):	Wall Thickness (in.):	Type of Metal:	Total Depth (ft):	Stickup (ft):
None	NA		NA	NA
Diameter (in.):	Wall Thickness (in.):	Type of Metal:	Total Depth (ft):	Stickup (ft):
None	NA		NA	NA

File Name Prefix:	Field Disk/Part:	Return Error (in.):	High/Low at (ft):	Field Verifier ID:
MC05	MC05	0.000	LOW	COLEMAN 1
Pre Log Verification:	Gross c/s:	Background .c/s:	Th 583 keV photo peak FWHM:	
	722.00	na	na	
Post Log Verification:	Gross c/s:	Background .c/s:	Th 583 keV photo peak FWHM:	
	700.00			

Log Interval:	Fix Speed (fpm):	Move-Stop-Acquire(s {LT/RT}):		
	0.90	na		
Depth Range	Start (ft):	Stop (ft):	Incr (ft):	
	0.00	80.00	0.25	
Log Interval:	Fix Speed (fpm):	Move-Stop-Acquire(s {LT/RT}):		
Depth Range	Start (ft):	Stop (ft):	Incr (ft):	
	68.00	117.50	0.25	
Log Interval:	Fix Speed (fpm):	Move-Stop-Acquire(s {LT/RT}):		
Depth Range	Start (ft):	Stop (ft):	Incr (ft):	
Log Interval:	Fix Speed (fpm):	Move-Stop-Acquire(s {LT/RT}):		
Depth Range	Start (ft):	Stop (ft):	Incr (ft):	
	114.00	108.00	0.50	

LOGGING OPERATIONS WERE PERFORMED AND EQUIPMENT CLEANED AS PER PROCEDURES, 17.0 GEOPHYSICAL LOGGING, DURATEK FEDERAL SERVICES, INC.

Prepared by (print): JAMES E.MEISNER

Signature:

Date: 9/9/02

BOREHOLE SURVEY DATA SHEET

Project:	TX Farm Drilling	Well Name:		Well ID:	C3830
Date:	09/09/02	Location:	TX Tank Farm, South of Tank TX-105		

Notes:

5.0-4.75=.25 meas. Pt in hole w/ top of cablehead

BOREHOLE LOGGING INFORMATION

Logger:	JAMES E. MEISNER		Logging Unit Configuration:	RLS1	
Depth Datum Reference:	Ground Surface		Instrument Calibration Configuration:	RLSG0700S00.0	
Total Well Depth (ft):	116.75 Source:	Driller	Water Level (ft) :	Dry Source:	Driller
Source for Casing Parameters:	Measured with Calipers				

Casing Diameter (in.):	Wall Thickness (in.):	Type of Metal:	Total Depth (ft):	Stickup (ft):
O.D = 7.0, I.D. = 5.81	0.60	CARBON STEEL	116.75	4.75
Diameter (in.):	Wall Thickness (in.):	Type of Metal:	Total Depth (ft):	Stickup (ft):
None	NA		NA	NA
Diameter (in.):	Wall Thickness (in.):	Type of Metal:	Total Depth (ft):	Stickup (ft):
None	NA		NA	NA
Diameter (in.):	Wall Thickness (in.):	Type of Metal:	Total Depth (ft):	Stickup (ft):
None	NA		NA	NA

File Name Prefix:	Field Disk/Part:	Return Error (in.):	High/Low at (ft):	Field Verifier ID:
A734	A734	0.000	LOW	COLEMAN 1
Pre Log Verification:	Gross c/s:	Background .c/s:	Th 583 keV photo peak FWHM:	
	1825.00	1254.00	na	
Post Log Verification:	Gross c/s:	Background .c/s:	Th 583 keV photo peak FWHM:	

Log Interval:	Fix Speed (fpm):	Move-Stop-Acquire(s {LT/RT}):		
	na	150rt		
Depth Range	Start (ft):	Stop (ft):	Incr (ft):	
	0.00	9.50	0.50	
Log Interval:	Fix Speed (fpm):	Move-Stop-Acquire(s {LT/RT}):		
Depth Range	Start (ft):	Stop (ft):	Incr (ft):	
Log Interval:	Fix Speed (fpm):	Move-Stop-Acquire(s {LT/RT}):		
Depth Range	Start (ft):	Stop (ft):	Incr (ft):	
Log Interval:	Fix Speed (fpm):	Move-Stop-Acquire(s {LT/RT}):		
Depth Range	Start (ft):	Stop (ft):	Incr (ft):	

LOGGING OPERATIONS WERE PERFORMED AND EQUIPMENT CLEANED AS PER PROCEDURES, 17.0 GEOPHYSICAL LOGGING, DURATEK FEDERAL SERVICES, INC.

Prepared by (print): JAMES E.MEISNER

Signature:

Date: 9/9/02

APPENDIX D

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUESTS

This page intentionally left blank.

6268 CLEANING FACILITY

EQUIPMENT CHECK IN FORM

QUANTITY	ITEM	CUSTOMER	PROJECT
21	Complete Split Spoons	S. Harold	TX-Borehole

CUSTOMER INFORMATION:

The equipment that is being submitted for cleaning, to the best of my knowledge, meets the following criteria for acceptance into the 6268 cleaning facility.

___ Is new equipment that has never been utilized for field sampling.

✓ The equipment has been utilized for field sampling inside of a radiologically controlled area, but has been "free released" by field radiological control technicians.
If so, survey number:_____RCT signature:_____Date:_____

___ The equipment has been utilized for field sampling, but was not utilized a radiologically controlled area.

Customer:_____Print Name:_____Date:_____

RECEIPT INFORMATION

Receiver: K.J. Young Print Name: K.J. Young Date: 8/20/02

Duratek Federal Services

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C # 102292

Page 1 of 1

Collector YOUNG, K.J.	Contact/Requestor SYDNOR, HAROLD	Tel. No. 372-9414 MSIN H0-22 FAX
SAF Number S02-083	Sample Origin T-Farm	Purchase Order/Charge Code
Project Title TX Borehole (3830)	Logbook # OFSNW-SALS-HSS	Ice Chest # SALS-003 Temp.
Shipped To (Lab) AG&G	Method of Shipment Gov Truck	Bill of Lading/Air Bill No.
Protocol RCRA	Data Turnaround PER CONTRACT	Offsite Property No.

Sample No.	Lab. ID	*	Date	Time	No/Type Container	Sample Analysis	Perservative
S02083-01		W	8/26/02	1030	(1) 125 P	IC Anions (EPA 300.0)	Cool to 4°C
S02083-01		W			(1) 500 P	ICP Metals - 6010A (TAL)	HNO3
S02083-01		W			(1) 1000 aG	Semi-VOA (8270)	Cool 4 deg. C
S02083-01		W			(1) 250 aGs	TOC (9060)	H2SO4/Cool to 4°C
S02083-01		W			(1) 1000 P	Total Alpha / Beta (Lab Specific), GEA	HNO3
S02083-01		W			(1) 1000 P	Tritium, (H3)	Cool to 4°C
S02083-01		W	↓	↓	(3) 40 aGs	VOA	HCL

POSSIBLE SAMPLE HAZARDS/REMARKS MSDS Yes ☐ No ☑
List all known wastes.

SPECIAL INSTRUCTIONS **Hold Time**

Relinquished By Print / Sign	Date/Time	Received By Print / Sign	Date/Time
K.J. Young K.J. Young	8/27/02 1530	M. Valenta M. Valenta	8/27/02 1537
Relinquished By	Date/Time	Received By	Date/Time
Relinquished By	Date/Time	Received By	Date/Time
Relinquished By	Date/Time	Received By	Date/Time

Matrix *

S = Soil		DS = Drum Solids	
SE = Sediment		DL = Drum Liquids	
SO = Solid		T = Tissue	
SL = Sludge		WI = Wipe	
W = Water		L = Liquid	
O = Oil		V = Vegetation	
A = Air		X = Other	

FINAL SAMPLE DISPOSITION Disposal Method e.g. Return to customer, per lab procedure, used in process. Disposed By Date/Time

DI ...S-010

Duratek Federal Services

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C # 10 - 93

Page 1 of 1

Collector K.J. Young	Contact/Requestor Sydnor, Harold	Tel. No. 372-9414 MSIN HO-22 FAX	
SAF Number S02-083	Sample Origin T-Farm	Purchase Order/Charge Code	
Project Title TX Bore Hole (C38301)	Logbook # DFSNW-SAWS-H55	Ice Chest # 1 Drum	Temp.
Shipped To (Lab) AG & G	Method of Shipment Gov Truck	Bill of Lading/Air Bill No.	
Protocol RCRA	Data Turnaround Per contract	Offsite Property No.	

Sample No.	Lab. ID	*	Date	Time	No/Type Container	Sample Analysis	Actual Depth	Perservative
S02083-02			8/20/02	1120	(1) S/S	Per contract	14.96 -> 16.31 ft	4°C
S02083-03			8/20/02	1448	(1) S/S	" "	27.91 -> 29.25 ft	4°C
					( )			
					( )			
					( )			
					( )			
					( )			
					( )			
					( )			
					( )			
					( )			
					( )			

POSSIBLE SAMPLE HAZARDS/REMARKS List all known wastes. MSDS Yes ☐ No ☑

SPECIAL INSTRUCTIONS Hold Time

Relinquished By Print / Sign	Date/Time	Received By Print / Sign	Date/Time
K.J. Young Ken Young	8/20/02 1550	Henry DeBey Ginny LeGore	8/20/02 1550
Relinquished By	Date/Time	Received By	Date/Time
Relinquished By	Date/Time	Received By	Date/Time
Relinquished By	Date/Time	Received By	Date/Time

Matrix *

S = Soil		DS = Drum Solids	
SE = Sediment		DL = Drum Liquids	
SO = Solid		T = Tissue	
SL = Sludge		WI = Wipe	
W = Water		L = Liquid	
O = Oil		V = Vegetation	
A = Air		X = Other	

FINAL SAMPLE DISPOSITION — Disposal Method e.g. Return to customer, per lab procedure, used in process. Disposed By Date/Time

DFNW-SS-010

Duratek Federal Services

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C # 102-14

Page 1 of 1

Collector: K.J. Young	Contact/Requestor: Sydnor, Harold	Tel. No.: 372-9414 MSIN: HO-22 FAX:
SAF Number: S02-083	Sample Origin: T-Farm	Purchase Order/Charge Code:
Project Title: TX Bore Hole (C38301	Logbook #: DFSNW-SAWS-H55	Ice Chest #: Drum # 1 Temp.:
Shipped To (Lab): AG & G	Method of Shipment: Gov Truck	Bill of Lading/Air Bill No.:
Protocol: RCRA	Data Turnaround: Per contract	Offsite Property No.:

Sample No.	Lab. ID	*	Date	Time	No/Type Container	Sample Analysis	Actual Depth	Perservative
S02083-04			8/21/02	0940	(1) S/S	Per contract	40.93 - 42.49	4°C
S02083-05			8/21/02	1250	(1) S/S	" "	~~46.20 - 47.50~~ BD	4°C
					( )		46.05 - 47.50	
					( )			
					( )			
					( )			
					( )			
					( )			
					( )			
					( )			
					( )			
					( )			

POSSIBLE SAMPLE HAZARDS/REMARKS — List all known wastes. MSDS Yes ☐ No ☑

SPECIAL INSTRUCTIONS — Hold Time

Relinquished By (Print / Sign)	Date/Time	Received By (Print / Sign)	Date/Time
K.J. Young	8/21/02 1445	Ginny LaGore	8/21/02 1445

Matrix *

S = Soil		DS = Drum Solids	
SE = Sediment		DL = Drum Liquids	
SO = Solid		T = Tissue	
SL = Sludge		WI = Wipe	
W = Water		L = Liquid	
O = Oil		V = Vegetation	
A = Air		X = Other	

FINAL SAMPLE DISPOSITION — Disposal Method e.g. Return to customer, per lab procedure, used in process. Disposed By Date/Time

DFNW-SS-010

Duratek Federal Services

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C # 10-695

Page 1 of 1

Collector K.J. Young	Contact/Requestor Sydnor, Harold	Tel. No. 372-9414 MSIN HO-22 FAX
SAF Number S02-083	Sample Origin T-Farm	Purchase Order/Charge Code
Project Title TX Bore Hole (C3830)	Logbook # DFSNW-SAWS-H55	Ice Chest # Drum # 1 & # 2 Temp.
Shipped To (Lab) AG&G	Method of Shipment Gov Truck	Bill of Lading/Air Bill No. N/A
Protocol RCRA	Data Turnaround Per contract	Offsite Property No. N/A

Sample No.	Lab. ID	*	Date	Time	No/Type Container	Sample Analysis	Actual Depth	Perservative
S02083-06			8/22/02	0818	(1) S/S	Per contract	47.50 to 49.00	4°C
S02083-07			8/22/02	1142	(1) S/S	" "	52.98 to 54.36	4°C
S02083-08			8/22/02	1453	(1) S/S	" "	56.99 to 58.37	4°C
					( )			
					( )			
					( )			
					( )			
					( )			
					( )			
					( )			
					( )			
					( )			

POSSIBLE SAMPLE HAZARDS/REMARKS List all known wastes. MSDS Yes ☐ No ☑

SPECIAL INSTRUCTIONS Hold Time

Relinquished By Print / Sign	Date/Time	Received By Print / Sign	Date/Time
K.J. Young / [signature]	8/22/02 1600	Ginny Logan / [signature]	8/22/02 1600
Relinquished By	Date/Time	Received By	Date/Time
Relinquished By	Date/Time	Received By	Date/Time
Relinquished By	Date/Time	Received By	Date/Time

Matrix *

S = Soil		DS = Drum Solids	
SE = Sediment		DL = Drum Liquids	
SO = Solid		T = Tissue	
SL = Sludge		WI = Wipe	
W = Water		L = Liquid	
O = Oil		V = Vegetation	
A = Air		X = Other	

FINAL SAMPLE DISPOSITION — Disposal Method e.g. Return to customer, per lab procedure, used in process. Disposed By Date/Time

DFNW-SS-010

Duratek Federal Services

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C # 102296

Page 1 of 1

Collector K.J. Young	Contact/Requestor Sydnor, Harold	Tel. No. 372-9414 MSIN HO-22 FAX
SAF Number S02-083	Sample Origin T-Farm	Purchase Order/Charge Code
Project Title TX Bore Hole (C38301)	Logbook # DFSNW-SAWS-H55	Ice Chest # Drum # 1 Temp.
Shipped To (Lab) AG & G	Method of Shipment Gov Truck	Bill of Lading/Air Bill No.
Protocol RCRA	Data Turnaround Per contract	Offsite Property No.

Sample No.	Lab. ID	*	Date	Time	No/Type Container	Sample Analysis	Actual Depth	Perservative
S02083-09			8/23/02	0925	(1) S/S	Per Contract	58.29 - 59.70	4°C
					( )			
					( )			
					( )			
					( )			
					( )			
					( )			
					( )			
					( )			
					( )			
					( )			
					( )			

POSSIBLE SAMPLE HAZARDS/REMARKS List all known wastes. MSDS Yes ☐ No ☑

SPECIAL INSTRUCTIONS Hold Time

Relinquished By Print / Sign	Date/Time	Received By Print / Sign	Date/Time
K.J. Young	8/23/02 1400	Michelle Valento Michelle Valento	8/23/02 1400
Relinquished By	Date/Time	Received By	Date/Time
Relinquished By	Date/Time	Received By	Date/Time
Relinquished By	Date/Time	Received By	Date/Time

Matrix *

S = Soil		DS = Drum Solids	
SE = Sediment		DL = Drum Liquids	
SO = Solid		T = Tissue	
SL = Sludge		WI = Wipe	
W = Water		L = Liquid	
O = Oil		V = Vegetation	
A = Air		X = Other	

FINAL SAMPLE DISPOSITION — Disposal Method e.g. Return to customer, per lab procedure, used in process. Disposed By Date/Time

DFNW-SS-010

Duratek Federal Services

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C # 102297

Page 1 of 1

Collector K.J. Young	Contact/Requestor Sydnor, Harold	Tel. No. 372-9414 MSIN HO-22 FAX	
SAF Number S02-083	Sample Origin T-Farm	Purchase Order/Charge Code	
Project Title TX Bore Hole (C38301)	Logbook # DFSNW-SAWS-H55	Ice Chest # Drum # 1 Temp.	
Shipped To (Lab) AG & G	Method of Shipment Gov Truck	Bill of Lading/Air Bill No.	
Protocol RCRA	Data Turnaround Per contract	Offsite Property No.	

Sample No.	Lab. ID	*	Date	Time	No/Type Container	Sample Analysis	Actual Depth	Perservative
S02083-10			8/26/02	1318	(1) S/S	Per contract	66.06 -> 67.46	4°
					( )			
					( )			
					( )			
					( )			
					( )			
					( )			
					( )			
					( )			
					( )			
					( )			
					( )			

POSSIBLE SAMPLE HAZARDS/REMARKS List all known wastes. MSDS Yes ☐ No ☑

SPECIAL INSTRUCTIONS Hold Time

Relinquished By Print	Sign	Date/Time	Received By Print	Sign	Date/Time
K.J. Young	K.J. Young	8/26/02 1545	Mark Linkenmeyer	Mark Linkenmeyer	8/26/02 1545
Relinquished By		Date/Time	Received By		Date/Time
Relinquished By		Date/Time	Received By		Date/Time
Relinquished By		Date/Time	Received By		Date/Time

Matrix *

S = Soil		DS = Drum Solids	
SE = Sediment		DL = Drum Liquids	
SO = Solid		T = Tissue	
SL = Sludge		WI = Wipe	
W = Water		L = Liquid	
O = Oil		V = Vegetation	
A = Air		X = Other	

FINAL SAMPLE DISPOSITION Disposal Method e.g. Return to customer, per lab procedure, used in process. Disposed By Date/Time

W-SS-010

Duratek Federal Services

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C # 102298

Page 1 of 1

Collector K.J. Young	Contact/Requestor Sydnor, Harold	Tel. No. 372-9414 MSIN HO-22 FAX
SAF Number S02-083	Sample Origin T-Farm	Purchase Order/Charge Code
Project Title TX Bore Hole (C3830)	Logbook # DFSNW-SAWS-H55	Ice Chest # Drum #1 #2 Temp.
Shipped To (Lab) AG & G	Method of Shipment Gov Truck	Bill of Lading/Air Bill No.
Protocol RCRA	Data Turnaround Per contract	Offsite Property No.

Sample No.	Lab. ID	*	Date	Time	No/Type Container	Sample Analysis	Actual Depth ft	Perservative
S02083-11			8/27/02	0810	(1) S/S	Per contract	71.95 - 73.30	4°C
S02083-12			8/27/02	1135 ~~0915~~	(1) S/S	" "	76.98 - 78.35	4°C
					( )			
					( )			
					( )			
					( )			
					( )			
					( )			
					( )			
					( )			
					( )			
					( )			

POSSIBLE SAMPLE HAZARDS/REMARKS List all known wastes. MSDS Yes ☐ No ☑

SPECIAL INSTRUCTIONS Hold Time

Relinquished By Print / Sign	Date/Time	Received By Print / Sign	Date/Time
K.J. Young / K.J. Young	8/27/02 1530	M. Valenta / M. Valenta	8/27/02 1530
Relinquished By	Date/Time	Received By	Date/Time
Relinquished By	Date/Time	Received By	Date/Time
Relinquished By	Date/Time	Received By	Date/Time

Matrix *

S = Soil		DS = Drum Solids	
SE = Sediment		DL = Drum Liquids	
SO = Solid		T = Tissue	
SL = Sludge		WI = Wipe	
W = Water		L = Liquid	
O = Oil		V = Vegetation	
A = Air		X = Other	

FINAL SAMPLE DISPOSITION Disposal Method e.g. Return to customer, per lab procedure, used in process. Disposed By Date/Time

IW-SS-010

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Fluor Federal Services

Page of

Collector K.J. Young	Contact/Requestor Sydnor, Harold	Tel. No. 372-9414 MSIN HO-22 FAX
SAF Number S02-083	Sample Origin T-Farm	Purchase Order/Charge Code
Project Title TX Bore Hole (C3830)	Logbook # DFSNW-SAWS-H55	Ice Chest # Drum #1 & 2 Temp.
Shipped To (Lab) AG&G	Method of Shipment Gov Truck	Bill of Lading/Air Bill No.
Protocol RCRA	Data Turnaround Per contract	Offsite Property No.

Sample No.	Lab. ID	*	Date	Time	No/Type Container	Sample Analysis	Actual Depth	Perservative
S02083-13			8/28/02	0855	(1) S/S	Per contract	80.91 -> 82.21	4°C
S02083-14			8/28/02	1440	(1) S/S	" "	86.16 - 87.41	4°C
					( )			
					( )			
					( )			
					( )			
					( )			
					( )			
					( )			
					( )			
					( )			
					( )			

POSSIBLE SAMPLE HAZARDS/REMARKS List all known wastes. MSDS Yes ☐ No ☑

SPECIAL INSTRUCTIONS Hold Time

Relinquished By Print / Sign	Date/Time	Received By Print / Sign	Date/Time
K.J. Young	8/28/02 1530	M. Valenta M. Valenta	8/28/02 1530
Relinquished By	Date/Time	Received By	Date/Time
Relinquished By	Date/Time	Received By	Date/Time
Relinquished By	Date/Time	Received By	Date/Time

Matrix *

S = Soil		DS = Drum Solids	
SE = Sediment		DL = Drum Liquids	
SO = Solid		T = Tissue	
SL = Sludge		WI = Wipe	
W = Water		L = Liquid	
O = Oil		V = Vegetation	
A = Air		X = Other	

FINAL SAMPLE DISPOSITION — Disposal Method e.g. Return to customer, per lab procedure, used in process. Disposed By Date/Time

DFNW-SS-010

Duratek Federal Services

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C # 102300

Page 1 of 1

Collector K.J. Young	Contact/Requestor Sydnor, Harold	Tel. No. 372-9414 MSIN H0-22	FAX
SAF Number S02-083	Sample Origin T-Farm	Purchase Order/Charge Code	
Project Title TX Bore Hole (C3830)	Logbook # DFSNW-SAWS-H55	Ice Chest # Drum #1	Temp.
Shipped To (Lab) AG & G	Method of Shipment Gov Truck	Bill of Lading/Air Bill No. N/A	
Protocol RCRA	Data Turnaround Per contract	Offsite Property No. N/A	

Sample No.	Lab. ID	*	Date	Time	No/Type Container	Sample Analysis	Actual Depth	Perservative
S02083-15			9/3/02	0925	(1) S/S	Per Contract	98.97 - 100.36	4°C
S02083-16			9/3/02	1300	(1) S/S	" "	100.32 - 101.72	4°C
					( )			
					( )			
					( )			
					( )			
					( )			
					( )			
					( )			
					( )			
					( )			
					( )			

POSSIBLE SAMPLE HAZARDS/REMARKS List all known wastes. MSDS Yes ☐ No ☑

SPECIAL INSTRUCTIONS Hold Time

Relinquished By Print	Sign	Date/Time	Received By Print	Sign	Date/Time
K.J. Young	K.J. Young	9/3/02 1400	Ginny LeGore	Ginny LeGore	9/3/02 1400
Relinquished By		Date/Time	Received By		Date/Time
Relinquished By		Date/Time	Received By		Date/Time
Relinquished By		Date/Time	Received By		Date/Time

Matrix *

S = Soil		DS = Drum Solids	
SE = Sediment		DL = Drum Liquids	
SO = Solid		T = Tissue	
SL = Sludge		WI = Wipe	
W = Water		L = Liquid	
O = Oil		V = Vegetation	
A = Air		X = Other	

FINAL SAMPL. DISPOSITION | Disposal Method e.g. Return to customer, per lab procedure, used in process. | Disposed By | Date/Ti.

Duratek Federal Services

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C # 102301

Page 1 of 1

Collector K.J. Young	Contact/Requestor Sydnor, Harold	Tel. No. 372-9414 MSIN H0-22	FAX
SAF Number S02-083	Sample Origin T-Farm	Purchase Order/Charge Code	
Project Title TX Bore Hole (C3830)	Logbook # DFSNW-SAWS-H55	Ice Chest # Drum # 1	Temp.
Shipped To (Lab) AG & G	Method of Shipment Gov Truck	Bill of Lading/Air Bill No.	
Protocol RCRA	Data Turnaround Per contract	Offsite Property No.	

Sample No.	Lab. ID	*	Date	Time	No/Type Container	Sample Analysis	Actual Depth	Perservative
S02083-17		S	9/4/02	0840	(1) S/S	Per contract	102.99 - 104.44 ft	4°C
S02083-18		S	9/4/02	1311	(1) S/S		107.89 - 109.19	4°C
					( )			
					( )			
					( )			
					( )			
					( )			
					( )			
					( )			
					( )			
					( )			
					( )			

POSSIBLE SAMPLE HAZARDS/REMARKS List all known wastes. MSDS Yes ☐ No ☑

SPECIAL INSTRUCTIONS Hold Time

Relinquished By Print	Sign	Date/Time	Received By Print	Sign	Date/Time
K.J. Young	K.J. Young	9/4/02 1410	Ginny Lobov	Ginny Lobov	9/4/02 1410
Relinquished By		Date/Time	Received By		Date/Time
Relinquished By		Date/Time	Received By		Date/Time
Relinquished By		Date/Time	Received By		Date/Time

Matrix *

S = Soil		DS = Drum Solids	
SE = Sediment		DL = Drum Liquids	
SO = Solid		T = Tissue	
SL = Sludge		WI = Wipe	
W = Water		L = Liquid	
O = Oil		V = Vegetation	
A = Air		X = Other	

FINAL SAMPLE DISPOSITION — Disposal Method e.g. Return to customer, per lab procedure, used in process. Disposed By Date/Time

DFNW-SS-010

Duratek Federal Services

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C # 102302

Page 1 of 1

Collector K.J. Young	Contact/Requestor Sydnor, Harold	Tel. No. 372-9414 MSIN HO-22 FAX	
SAF Number S02-083	Sample Origin T-Farm	Purchase Order/Charge Code	
Project Title TX Bore Hole (C3830)	Logbook # DFSNW-SAWS-H55	Ice Chest # Drum #1	Temp.
Shipped To (Lab) AG&G	Method of Shipment Gov Truck	Bill of Lading/Air Bill No.	
Protocol RCRA	Data Turnaround Per contract	Offsite Property No.	

Sample No.	Lab. ID	*	Date	Time	No/Type Container	Sample Analysis	Actual Depth	Perservative
S02083-19		S	9/5/02	1000	(1) S/S	Per contract	113.55 - 115.00	4°C
					( )			
					( )			
					( )			
					( )			
					( )			
					( )			
					( )			
					( )			
					( )			
					( )			
					( )			

POSSIBLE SAMPLE HAZARDS/REMARKS List all known wastes. MSDS Yes ☐ No ☑

SPECIAL INSTRUCTIONS Hold Time
This sample, S02083-19 completes all sampling for the TX project. "FINAL Sample"

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
K.J. Young	K.J. Young	K.J. Young	9/5/02 1420	Ginny LeGore	Ginny LeGore	Ginny LeGore	9/5/02 1420
Relinquished By			Date/Time	Received By			Date/Time
Relinquished By			Date/Time	Received By			Date/Time
Relinquished By			Date/Time	Received By			Date/Time

Matrix *

S = Soil		DS = Drum Solids	
SE = Sediment		DL = Drum Liquids	
SO = Solid		T = Tissue	
SL = Sludge		WI = Wipe	
W = Water		L = Liquid	
O = Oil		V = Vegetation	
A = Air		X = Other	

FINAL SAMPLE DISPOSITION — Disposal Method e.g. Return to customer, per lab procedure, used in process. Disposed By Date/Time

FNW-SS-010

APPENDIX E

FIELD DOCUMENTATION

This page intentionally left blank.

Duratek Federal Services

Duratek Federal Services, Inc.
Northwest Operations

TX Tank Farm Characterization Project Blow Count Form

PRELIMINARY DATA

Date: 08 20 02 Operator: BSE Page 1 of 11
Location: TX Tank Farm Personnel: K. OLSON
Borehole Number: C3830 Rig Number: 106 Hammer: ICE 40S

BOREHOLE SPECIFIC DATA

Starter Casing Size: 7 inch O.D. Constant: 3.35 ft/3.1 top of plate/plate .25 ft
Drive Casing Size/Type: 4.5 inch O.D. Starter Casing Depth: 0.0
Tip Size/Type: 7.5 X 17.75 inch Total Depth: 14.96
Joint Type: Welded N/A Conical: 4.75 inch I.D.
Threaded 4.5 Pinpile

DEPTH		BLOWS/FT	AVE. STROKE	DRIVING TIME	TIP DEPTH
0	1	3		08:20	
1	2	2			
2	3	2		N/A	N/A
3	4	2			
4	5	3			
5	6.19	3		08:42	6.19
6.19	7.19	8		09:40	
7.19	8.19	14			N/A
8.19	9.19	12		N/A	
9.19	10.19	10			
10.19	11.19	9		09:41	11.19
11.19	12.19	12	N/A	10:08	
12.19	13.19	10		N/A	N/A
13.19	14.19	8			
14.19	14.96	6		10:09	14.96
14.96	15.46	1	S02083-02	10:57	N/A
15.46	15.96	1	N/A	N/A	

Prepared by: D.E. SKOGLIE Reviewed by: 10-8-02

Duratek Federal Services

Duratek Federal Services, Inc.
Northwest Operations

TX Tank Farm Characterization Project Blow Count Form

PRELIMINARY DATA

Date: 08 20 02 Operator: BSE Page 2 of 11
Location: TX Tank Farm Personnel: K. OLSON
Borehole Number: C3830 Rig Number: 106 Hammer: ICE 40S

BOREHOLE SPECIFIC DATA

Constant: 3.35 ft/3.1 top of plate/plate .25 ft
Starter Casing Size: 7 inch O.D. Starter Casing Depth: 14.96
Drive Casing Size/Type: 4.5 inch O.D. Total Depth: 27.91
Tip Size/Type: 7.5 X 17.75 inch Conical: 4.75 inch I.D.
Joint Type: Welded N/A Threaded 4.5 Pinpile

DEPTH		BLOWS/FT	AVE. STROKE	DRIVING TIME	TIP DEPTH
15.96	16.31	1		10:58	14.96
14.96	15.96	4		12:50 - 12:51	
15.96	16.96	10		13:13	N/A
16.96	17.96	10			
17.96	18.96	10		N/A	
18.96	19.96	12			
19.96	20.94	13		13:14	20.94
20.94	21.94	14		13:35	
21.94	22.94	14			N/A
22.94	23.94	14		N/A	
23.94	24.94	14	N/A		
24.94	26.02	15		13:36	26.02
					N/A
26.02	27.02	20		13:52	
27.02	27.91	11		13:53	27.91
					N/A
27.91	28.41	2	S02083-03	N/A	
28.41	28.91	2	N/A		

Prepared by: D. E. Skoglie Reviewed by: MBarnes 10-8-02

Duratek Federal Services

Duratek Federal Services, Inc.
Northwest Operations

TX Tank Farm Characterization Project Blow Count Form

PRELIMINARY DATA

Date: 08 20-21 02 Operator: BSE Page 3 of 11
Location: _TX Tank Farm_____ Personnel: K. OLSON
Borehole Number: _C3830_____ Rig Number: 106 Hammer: ICE 40S

BOREHOLE SPECIFIC DATA

Constant: _3.35 ft/3.1 top of plate/plate .25 ft
Starter Casing Size: _____7 inch O.D.___ Starter Casing Depth: 27.91
Drive Casing Size/Type: __4.5 inch O.D.__ Total Depth: 40.93
Tip Size/Type: ____7.5 X 17.75 inch Conical: _____4.75 inch I.D._____
Joint Type: Welded ___N/A_____ Threaded _____4.5 Pinpile_____

DEPTH		BLOWS/FT	AVE. STROKE	DRIVING TIME	TIP DEPTH
28.91	29.25	1		14:29	
					N/A
27.91	28.91	8		07:42	
28.91	29.91	10		N/A	
29.91	30.95	10		07:43	30.95
30.95	31.95	10		08:04	
31.95	32.95	10			N/A
32.95	33.95	13	N/A	N/A	
33.95	34.95	15			
34.95	36.1	16		08:06	36.1
36.1	37.1	13		08:26	
37.1	38.1	15			N/A
38.1	39.1	14		N/A	
39.1	40.1	14			
40.1	40.93	10		08:27	40.93
40.93	41.43	1	S02083-04	09:17	N/A
41.43	41.93	2	N/A		

Prepared by: D.E. Skoglie Reviewed by: 10-8-02

Duratek Federal Services

Duratek Federal Services, Inc.
Northwest Operations

TX Tank Farm Characterization Project Blow Count Form

PRELIMINARY DATA

Date: 08 21-22 02 Operator: BSE Page 4 of 11
Location: TX Tank Farm Personnel: K. OISON
Borehole Number: C3830 Rig Number: 106 Hammer: ICE 40S

BOREHOLE SPECIFIC DATA

Constant: 3.35 ft/3.1 top of plate/plate .25 ft
Starter Casing Size: 7 inch O.D. Starter Casing Depth: 40.93
Drive Casing Size/Type: 4.5 inch O.D. Total Depth: 50.05
Tip Size/Type: 7.5 X 17.75 inch Conical: 4.75 inch I.D.
Joint Type: Welded N/A Threaded 4.5 Pinpile

DEPTH		BLOWS/FT	AVE. STROKE	DRIVING TIME	TIP DEPTH
41.93	42.49	1		09:18	
40.93	41.93	6		10:42	N/A
41.93	42.93	9			
42.93	43.93	8	N/A	N/A	
43.93	44.93	9			
44.93	46.05	12		10:44	46.05
46.05	46.55	1	502083-05	12:29	
46.55	47.05	1		N/A	
47.05	47.5	1	N/A	12:30	
					N/A
47.5	48.0	1	502083-06	07:43	
48.0	48.5	2		N/A	
48.5	49.0	1		07:44	
46.05	47.05	7	N/A	08:50	
47.05	48.05	11			
48.05	49.05	13		N/A	
49.05	50.05	20			50.05

Prepared by: D.E. Skoglie Reviewed by: 10-08-02

Duratek Federal Services

Duratek Federal Services, Inc.
Northwest Operations

TX Tank Farm Characterization Project Blow Count Form

PRELIMINARY DATA

Date: 08 22-23 02 Operator: BSE Page 5 of 11
Location: TX Tank Farm Personnel: K. OLSON
Borehole Number: C3830 Rig Number: 106 Hammer: ICE 40S

BOREHOLE SPECIFIC DATA

Constant: 3.35 ft/3.1 top of plate/plate .25 ft
Starter Casing Size: 7 inch O.D. Starter Casing Depth: 50.05
Drive Casing Size/Type: 4.5 inch O.D. Total Depth: 56.99
Tip Size/Type: 7.5 X 17.75 inch Conical: 4.75 inch I.D.
Joint Type: Welded N/A Threaded 4.5 Pinpile

DEPTH		BLOWS/FT	AVE. STROKE	DRIVING TIME	TIP DEPTH
50.05	50.87	15		08:52	50.87
					N/A
50.87	51.87	15	N/A	09:08	
51.87	52.98	16		09:09	52.98
52.98	53.48	3	502083-07	11:11	
53.48	53.98	3		N/A	
53.98	54.36	2		11:12	
					N/A
52.98	53.98	11	N/A	13:24	
53.98	54.98	28		N/A	
54.98	55.98	34			
55.98	56.99	31		13:28	56.99
56.99	57.49	3	502083-08	14:25	
57.49	57.99	4		N/A	
57.99	58.37	2	N/A	14:26	N/A
58.29	58.79	2	502083-09	08:53	
58.79	59.29	2	N/A	N/A	

Prepared by: D.E. Skoglie Reviewed by: [signature] 10-8-02

Duratek Federal Services

Duratek Federal Services, Inc.
Northwest Operations

TX Tank Farm Characterization Project Blow Count Form

PRELIMINARY DATA

Date: 08 23-26 02 Operator: BSE Page 6 of 11
Location: TX Tank Farm Personnel: K. OLSON
Borehole Number: C3830 Rig Number: 106 Hammer: ICE 40S

BOREHOLE SPECIFIC DATA

Starter Casing Size: 7 inch O.D. Constant: 3.35 ft/3.1 top of plate/plate .25 ft
Drive Casing Size/Type: 4.5 inch O.D. Starter Casing Depth: 56.99
Tip Size/Type: 7.5 X 17.75 inch Total Depth: 69.06
Joint Type: Welded N/A Conical: 4.75 inch I.D.
Threaded 4.5 Pinpile

DEPTH		BLOWS/FT	AVE. STROKE	DRIVING TIME	TIP DEPTH
59.29	59.7	2		08:53	
56.99	57.99	13		10:28	
57.99	58.99	15		N/A	N/A
58.99	59.99	12			
59.99	61.08	19		10:30	61.08
			N/A		
61.08	62.08	21		10:48	
62.08	63.08	30			N/A
63.08	64.08	39		N/A	
64.08	65.08	38			
65.08	66.08	38		10:52	66.06
66.06	66.56	2	502083-10	12:50	
66.56	67.06	2		N/A	
67.06	67.46	2		12:51	N/A
			N/A		
66.06	67.06	8		13:50	
67.06	68.06	27		N/A	
68.06	69.06	22			69.06

Prepared by: D.K. Skoglie Reviewed by: 10-8-02

Duratek Federal Services

Duratek Federal Services, Inc.
Northwest Operations

TX Tank Farm Characterization Project Blow Count Form

PRELIMINARY DATA

Date: 08 26-27 02 Operator: BSE Page 7 of 11
Location: TX Tank Farm Personnel: K. OLSON
Borehole Number: C3830 Rig Number: 106 Hammer: ICE 40S

BOREHOLE SPECIFIC DATA

Starter Casing Size: 7 inch O.D. Constant: 3.35 ft/3.1 top of plate/plate .25 ft
Drive Casing Size/Type: 4.5 inch O.D. Starter Casing Depth: 69.06
Tip Size/Type: 7.5 X 17.75 inch Total Depth: 78.98
Joint Type: Welded N/A Conical: 4.75 inch I.D.
Threaded 4.5 Pinpile

DEPTH		BLOWS/FT	AVE. STROKE	DRIVING TIME	TIP DEPTH
69.06	70.06	23		N/A	N/A
70.06	71.06	25	N/A		
71.06	71.95	43		13:59	71.95
71.95	72.45	3	502083-11	07:37	
72.45	72.95	3		N/A	
72.95	73.3	1		07:38	
					N/A
71.95	72.95	8		08:46	
72.95	73.95	31	N/A		
73.95	74.95	35		N/A	
74.95	75.95	36			
75.95	76.98	38		08:52	76.98
76.98	77.48	3	502083-12	11:00	
77.48	77.98	4		N/A	
77.98	78.35	3		11:01	N/A
			N/A		
76.98	77.98	12		13:41	
77.98	78.98	22		N/A	78.98

Prepared by: D.E. Skoglie Reviewed by: 10-8-02

Duratek Federal Services

Duratek Federal Services, Inc.
Northwest Operations

TX Tank Farm Characterization Project Blow Count Form

PRELIMINARY DATA

Date: 08 27-28-29 02 Operator: BSE Page 8 of 11
Location: TX Tank Farm Personnel: K. OLSON
Borehole Number: C3830 Rig Number: 106 Hammer: ICE 40S

BOREHOLE SPECIFIC DATA

Constant: 3.35 ft/3.1 top of plate/plate .25 ft
Starter Casing Size: 7 inch O.D. Starter Casing Depth: 78.98
Drive Casing Size/Type: 4.5 inch O.D. Total Depth: 89.06
Tip Size/Type: 7.5 X 17.75 inch Conical: 4.75 inch I.D.
Joint Type: Welded N/A Threaded 4.5 Pinpile

DEPTH		BLOWS/FT	AVE. STROKE	DRIVING TIME	TIP DEPTH
78.98	79.98	36		/	
79.98	80.91	38	N/A	13:46	80.91
80.91	81.41	4	S02083-13	08:20	
81.41	81.91	4		/	
81.91	82.21	3		08:22	N/A
80.91	81.91	NOT			
81.91	82.91	RECORDED	N/A		
82.91	83.91	"			
83.91	84.91	"			
84.91	86.11	"			86.11
86.11	86.61	4	S02083-14	N/A	
86.61	87.11	3			
87.11	87.41	3			
			N/A		N/A
86.11	87.06	26			
87.06	88.06	22			
88.06	89.06	21			89.06

Prepared by: D.E. Skoglie Reviewed by: 10-8-02

Duratek Federal Services

Duratek Federal Services, Inc.
Northwest Operations

TX Tank Farm Characterization Project Blow Count Form

PRELIMINARY DATA

Date: 08 29 02 / 09 03 02 Operator: BSE Page 9 of 11
Location: TX Tank Farm Personnel: K. OLSON
Borehole Number: C3830 Rig Number: 106 Hammer: ICE 40S

BOREHOLE SPECIFIC DATA

Constant: 3.35 ft/3.1 top of plate/plate .25 ft
Starter Casing Size: 7 inch O.D. Starter Casing Depth: 89.06
Drive Casing Size/Type: 4.5 inch O.D. Total Depth: 99.97
Tip Size/Type: 7.5 X 17.75 inch Conical: 4.75 inch I.D.
Joint Type: Welded N/A Threaded 4.5 Pinpile

DEPTH		BLOWS/FT	AVE. STROKE	DRIVING TIME	TIP DEPTH
89.06	90.06	20			
90.06	91.06	19			
91.06	92.04	20			
92.04	93.04	24			
93.04	94.04	23			N/A
94.04	95.04	25	N/A	N/A	
95.04	96.04	26			
96.04	97.01	21			
97.01	98.11	24			
98.11	98.97	5			98.97
98.97	99.47	3	502083-15	08:44	
99.47	99.97	3		N/A	
99.97	100.36	2	N/A	08:45	
					N/A
100.32	100.82	2	502083-16	12:13	
100.82	101.32	2		N/A	
101.32	101.72	1	N/A	12:14	
98.97	99.97	9			99.97

Prepared by: D.E. Skoglie Reviewed by: 10-8-02

Duratek Federal Services

Duratek Federal Services, Inc.
Northwest Operations

TX Tank Farm Characterization Project Blow Count Form

PRELIMINARY DATA

Date: 09-03-04 02 Operator: BSE Page 10 of 11
Location: TX Tank Farm Personnel: K. OLSON
Borehole Number: C3830 Rig Number: 106 Hammer: ICE 40S

BOREHOLE SPECIFIC DATA

Starter Casing Size: 7 inch O.D. Constant: 3.35 ft/3.1 top of plate/plate .25 ft
Drive Casing Size/Type: 4.5 inch O.D. Starter Casing Depth: 99.97
Tip Size/Type: 7.5 X 17.75 inch Total Depth: 109.89
Joint Type: Welded N/A Conical: 4.75 inch I.D.
Threaded 4.5 Pinpile

DEPTH		BLOWS/FT	AVE. STROKE	DRIVING TIME	TIP DEPTH
99.97	100.97	18			
100.97	101.97	17		N/A	N/A
101.97	102.99	20	N/A		102.99
102.99	103.49	2	S02083-17	07:58	
103.49	103.99	3		/	
103.99	104.44	2		07:59	
					N/A
102.99	103.99	7			
103.99	104.99	15			
104.99	105.99	17	N/A	N/A	
105.99	106.99	20			
106.99	107.89	22			107.89
107.89	108.39	2	S02083-18	12:28	
108.39	108.89	2		N/A	
108.89	109.19	2		12:29	N/A
			N/A		
107.89	108.89	12		N/A	
108.89	109.89	30			109.89

Prepared by: D.E. Skoglie Reviewed by: 10-8-02

Duratek Federal Services

Duratek Federal Services, Inc.
Northwest Operations

TX Tank Farm Characterization Project Blow Count Form

PRELIMINARY DATA

Date: 09 04 02 Operator: BSE Page 11 of 11
Location: TX Tank Farm Personnel: K. OLSON
Borehole Number: C3830 Rig Number: 106 Hammer: ICE 40S

BOREHOLE SPECIFIC DATA

Constant: 3.35 ft/3.1 top of plate/plate .25 ft
Starter Casing Size: 7 inch O.D. Starter Casing Depth: 109.89
Drive Casing Size/Type: 4.5 inch O.D. Total Depth: 116.75
Tip Size/Type: 7.5 X 17.75 inch Conical: 4.75 inch I.D.
Joint Type: Welded N/A Threaded 4.5 Pinpile

DEPTH	BLOWS/FT	AVE. STROKE	DRIVING TIME	TIP DEPTH
109.89-110.89	34			
110.89 - 111.89	24			
111.89- 113.0	25	N/A	N/A	N/A
113.0 - 113.6	36			113.6
113.55- 114.05	5	S020883-19	09:12	
114.05 - 114.55	7		N/A	
114.55 - 115.0	6		09:13	
				N/A
113.6 - 114.0	13		12:30	
114.0 - 115.0	60			
115.0 - 116.0	78		N/A	
116.0 - 116.42	40	N/A		
116.42 - 116.75	54		12:47	116.75
			N/A	N/A

Prepared by: D.E. Skoglie Reviewed by: 10-8-02

This page intentionally left blank.

APPENDIX F

FIELD LOGBOOK ENTRIES

This page intentionally left blank.

Project TX-Borehole C3830 Notebook No. DFSNW-SAWS-H55

Continued from Page 34

08/20/02 - Start of Sampling job TX-105 (C3830) Borehole.
0700 - On Site, Attended prejob, starting TX-105 Borehole first sample point 15-16 ft. K.J. Young Sampler.
0825 - Started driving casing to first sample point.
1045 - Added sampler to drive string
1057 - drove sampler # S020B3-02
1120 - collected sample, At 14.96 to 16.31 ft, No contamination
- Moisture present in soil at top of sampler, ("soil shaked out of Air hole") 100% full
1240 - Started driving casing to next sample point.
1415 - Added sampler to drive string
1430 - drove sampler # S020B3-03
1448 - collected sample. from 27.91 - 29.25 ft, No contamination no moisture, no soil present at top of sampler. 100%
1520 - left TX-Farm to ship samples to 3750 Lab

08/21/02
0640 - On Site, Attended prejob K.J. Young Sampler.
0742 - Started driving casing to next sample depth. 41-42 ft
0855 - Added sampler to drive string
0918 - drove sampler # S020B3-04
0940 - collected sample from 40.93 - 42.49 ft, No contamination no moisture, 100% full, light colored soil in top of sampler
1041 - Drove casing to next sample depth 46-47 ft
1110 - Added sampler to drive string.
1220 - Drove sampler to target depth of 46-47 ft # S020B3-05
1250 - collected sample from 46.~~50~~ 03 - 47.50 ft, No contamination no moisture, 100% full, light colored soil in top of sampler
1310 - Added sampler to drive string.
1345 - left TX farm to ship samples to 3720 building -

08/22/02
0650 On Site Attended prejob K.J. Young Sampler
0740 Drove sampler target depth 48-49 ft # S020B3-06
0818 collected sample from. 47.50 to 49.0 ft, No contamination no moisture, 100% full, light colored fine soil in top of sampler
0911 - started driving casing to next sample depth 53-54 ft

Continued on Page

Read and Understood By

K.J. Young — Signed
8/22/02 — Date
Signed
Date

Project TX · Borehole 105 C3830 Notebook No. DFSNW - SAWS - H55

Continued from Page 35

1040 - Added sample to drive string S02083-07
1112 - Drove sampler target depth 53-54 ft.
~~1310~~ 607
1142 - Collected sample 52.98 to 54.36 ft No contamination
No moisture. 100% recovery
1310 Drove casing to reach next target depth 57-58 ft
1405 - Added sample to drill string S02083-08
1422 - Drove sampler
1453 - Collected sample 56.99 - 58.37, No contamination
No Moisture 100% recovery
1520 - Added sampler to drill S02083-09
1545 - Shipped Samples to 3720 Lab.

8/23/02 -

0700 - Attended prejob K.J. Young Sampler.
on hold waiting for HPT coverage.
0840 - Drove sampler
0925 - Collected sample (S02083-09) 58.29 - 59.70, No contamination
No moisture, 100% recovery, fine powder in Air hole)
0940 - Added casing and driving to next target depth of
66-67 ft.
1137 - Stopped driving case problem on drill rig.
1400 - left to ship sample to 3720 Lab

8/26/02 -

0715 - Attended prejob K.J. Young Sampler.
0740 - On hold waiting for drill rig repair.
1031 - Added casing and drove. Filled Equipment Blank S02083-01
1228 - Added sampler to drive rod # S02083-10
TArget depth of 66-67 ft.
1250 - Drove sampler.
1318 - Collected sample. 66.06 to 67.46, no contamination
no moisture, 100% recovery fine powder in Air hole.
1356 - started driving casing for next target depth of
72-73 ft.
1510 - Added sampler to drive rod, S02083-11.
1520 - left TX Farm to ship sample to TX-37 3720 Lab.

8/27/02

0650 - On Site Attended prejob. K.J. Young (Sampler)

Continued on Page 37

Read and Understood By

Signed	Date	Signed	Date
Young	8/27/02		

Project TX Borehole 105 C3830 Notebook No: DPSNW-SAWS-1455 37

Continued from Page 36

0739 - Drive sample S020803-11 Target Depth 72-73 ft
0810 - collected sample. 71.95-73.30 ft, No contamination no moisture, 100% full.
0816 - started Adding casing to reach next sample point of 77-78 ft
0920 - Drive casing
1035 - Added sampler to drill rod # S020803-12, Target depth of 77-78 ft.
1100 - Drive sampler (# S020803-12)
1135 - collected sample 76.98-78.35 ft, No contamination No moisture, 100% recovery.
1250 - started driving casing for next sample point 81-82 Ft
1440 - Added sampler to drive rod # S020803-13
1510 - left to ship samples to 3720 LAB.

8/28/02

0645 - On Site Attended prejob. K.J. Young Sampler.
0720 - On hold waiting for HPT. 13
0819 - Drive sample # S020803-13 Target depth 81-82 Ft.
0855 - collected sample 80.91 → 82.21 Actual depth No contamination No moisture 90% recovery
0910 - Added casing to reach next sample depth of 86-87 ft
1323 - Added sampler to drive rod # S020803-14
1403 - Drive sampler Target depth of 86-87 Ft.
1440 - collected sample. 86.11 to 87.411 Ft No contamination no moisture, 100% recovery fine sand out of Air Hot
1520 - left to ship samples to 3720 LAB.

8/29/02

710 - On Site Attended prejob / Safety meeting K.J. Young (Sampler)
850 - Added casing And driving to next sample depth of 99-100 ft.
0922 - Added casing And driving.
1200 - Stopped driving casing, (lost HPT) No samples collected.

9/03/02

700 - on Site waiting for pre job K.J. Young Sampler
805 - Added sampler to drill string.

Continued on Page 38

Read and Understood By

K.J. Young — Signed — 9/3/02 — Date

Signed — Date

38

Project Tx Borehole 105 C3830 Notebook No. DFSNW-SAVS-1155

Continued from Page 37

Target depth of 99-100 ft S020883-15
0925 - collected sample 100% complete No Contamination / moisture
1120 - Added Sampler to drill string S020883-16 Target depth of 100-101 ft (back to back samples)
1217 - Drove sampler.
1300 - Collected sample - 100.32 - 101.72 ft No contamination no moisture. 100% full (S020883-16
1340 - left to ship samples to 3720 Lab.
9/4/02
0730 - Attended proj ob / Safety meeting K.J. Young Sampler. Casing was driven to next target depth of 103 - 104 ft on 9/3/02
0745 - Added sampler to drill rod # S020883-17
0805 - drove Sampler Target depth 103 - 104 ft
0840 - collected sample 102.99 ft to 104.44 ft No contamination no moisture, no material through Air hole 90% full.
0903 - Added casing And driving to next sample depth 108 ft.
1020 - Added sampler to drive rod # S020883-18
1229 - Drove sampler Target depth of 108 - 109 ft.
1311 - collected sample 107.89 - 109.19 ft No contamination No moisture, No Soil in Air hole 90% full.
1340 - left TX Farm to ship samples to 3720 Lab.
9/5/02 -
0730 - On site Attended proj ob K.J. Young Sampler
0820 - Drive casing to next sample depth. Target depth of 119 - 120 ft.
0905 - Added Sample to drive rod # S020883-19
1000 - collected sample 113.55 to 115.00 ft
No contamination, no moisture, 100% full
1254 - Drove casing unable to reach next sample point of 119 - 120ft This completes Sampling of TX-105 And Also completes Sample of the TX project.

Continued on Page N/A

Read and Understood By

J. Young — 9/5/02

Signed — Date — Signed — Date

APPENDIX G

EQUIPMENT CLEANING FORM

This page intentionally left blank.

6268 CLEANING FACILITY

EQUIPMENT CHECK OUT FORM

QUANTITY	ITEM	CUSTOMER	PROJECT	TPCN or WORK ORDER
21	Complete Split Spoons	S. Harold	TX Borehole	

*All equipment has been cleaned per ES-SSPM-001 SP 2-5, "Laboratory Cleaning of RCRA/CERCLA Sampling Equipment.

Custodian Signature: [signature] Print Name: K.J. Young Date: 8/26/02

Customer Signature: _____ Print Name: _____ Date: _____

This page intentionally left blank.

APPENDIX H

WASHINGTON STATE DEPARTMENT OF ECOLOGY DOCUMENTATION

This page intentionally left blank.

WASHINGTON STATE DEPARTMENT OF ECOLOGY

Notice of Intent to Construct a

GEOTECHNICAL SOIL BORING

S 00632

This form must be received by the Department of Ecology72 hours prior to construction of soil boring. Complete this form and mail to Department of Ecology, Water Resources Program, Well Drilling Unit, P.O. Box 47600, Olympia, WA 98504-7600. Instructions for filling out this form are printed on the back.

1. Property Owner U.S. DEPARTMENT OF ENERGY Phone No. (509) 373 9630
   Address (include city, state, zip) 825 JADWIN AVE., RICHLAND, WA. 99352
2. Agent (if different from #1) DURATEK FEDERAL SERVICES NW Phone No. (509) 372 8029
   Address (include city, state, zip) 345 Hills ST., Richland, WA. 99352
3. Project Name TX VADOSE ZONE PROJECT, BORING # C3830
4. Well Location: NE 1/4 of the SW 1/4 Section 1 Township 12 N Range 25 (EWM) or WWM *(circle one)*
   Address (if known) HANFORD SITE, 200 West Area, TX TANK FARM
5. Location of Well(s)

☐ Adams County	01-ERO	☐ Grays Harbor County	14-SWR	☐ Pierce County	27-SWR
☐ Asotin County	02-ERO	☐ Island County	15-NWR	☐ San Juan County	28-NWR
■ Benton County	03-CRO	☐ Jefferson County	16-SWR	☐ Skagit County	29-NWR
☐ Chelan County	04-CRO	☐ King County	17-NWR	☐ Skamania County	30-SWR
☐ Clallam County	05-SWR	☐ Kitsap County	18-NWR	☐ Snohomish County	31-NWR
☐ Clark County	06-SWR	☐ Kittitas County	19-CRO	☐ Spokane County	32-ERO
☐ Columbia County	07-ERO	☐ Klickitat County	20-CRO	☐ Stevens County	33-ERO
☐ Cowlitz County	08-SWR	☐ Lewis County	21-SWR	☐ Thurston County	34-SWR
☐ Douglas County	09-CRO	☐ Lincoln County	22-ERO	☐ Wahkiakum County	35-SWR
☐ Ferry County	10-ERO	☐ Mason County	23-SWR	☐ Walla Walla County	36-ERO
☐ Franklin County	11-ERO	☐ Okanogan County	24-CRO	☐ Whatcom County	37-NWR
☐ Garfield County	12-ERO	☐ Pacific County	25-SWR	☐ Whitman County	38-ERO
☐ Grant County	13-ERO	☐ Pend Oreille County	26-ERO	☐ Yakima County	39-CRO

6. Total number of borings to be constructed 1 7. Approx soil boring construction date July 01, 2002
8. Well Drilling Co Name BLUE STAR ENTERPRISES Phone No (509) 946 9388
9. Well Driller's Name MR. Kelly OLSON Driller's License No 1217
10. Contractor's L & I Registration No BLUESEI 980C6
11. Please fill out the portion below carefully. The return address label must contain the name and address of the person submitting this notification. This portion will be validated and returned to them as proof of notification. Send the entire form to Department of Ecology, Water Resources Program, Well Drilling Unit, P.O. Box 47600, Olympia, WA 98504-7600.

This notification number must be provided to your well driller:

S 00632

Submit by (return address)

Name MR. MARTIN G. GARDNER
Mailing Address 345 Hills ST.
City Richland State WA Zip 99352

Agency Validation

Date

ECY 040-55 (10/97)

Duratek
Federal Services

Duratek Federal Services, Inc.
Northwest Operations
345 Hills Street
Richland, Washington 99352
(509) 376-7055 - Phone
(509) 372-1435 - Fax

October 17, 2002 MGG-02-2423

Mr. Joe A. Caggiano
State of Washington
Department of Ecology
1315 West 4th Avenue
Kennewick, Washington 99336

Dear Mr. Caggiano:

WATER WELL REPORT

Attached is a Water Well Report for well C3830. Well C3830 is located in the 200 West Area (TX Tank Farm) at coordinates N136166.88, E 566795.41, and elevation 206.085.

Please reference Start Card numbers S00632 (Notice of Intent to Construct a Geotechnical Boring).

Should you have any questions, please contact me at (509) 372-8029.

Very truly yours,

M. G. Gardner, Manager
Sampling and Well Services

jmt

Attachment

CHG - A. J. Knepp
H. A. Sydnor

FH - J. E. Auten

DFSNW - K. R. Reynolds
D. E. Skoglie
S. H. Worley
MGG File/LB
CHG/RC3011

WATER WELL REPORT

STATE OF WASHINGTON DEPARTMENT OF ECOLOGY — Original & 1st copy - Ecology, 2nd copy - owner, 3rd copy - driller

Construction/Decommission *("x" in circle)*
(X) Construction
( ) Decommission *ORIGINAL CONSTRUCTION Notice of Intent Number* S00632

CURRENT Notice of Intent No. S00632
Unique Ecology Well ID Tag No. N/A
Water Right Permit No. N/A

Property Owner Name U.S. Department of Energy
Well Street Address 825 Jadwin Avenue
City Richland County: Benton
Location NE 1/4- 1/4 SW 1/4 Sec 1 Twn 12 R 25 (EWM) *circle one* WWM
Lat/Long: (s,t,r still REQUIRED) Lat Deg N136166.88 Lat Min/Sec
Long Deg E566795.41 EL: 206.085 Long Min/Sec
Tax Parcel No.

PROPOSED USE: ☐ Domestic ☐ Industrial ☐ Municipal ☒ Other Sensors Moisture ☐ DeWater ☐ Irrigation ☐ Test Well

TYPE OF WORK: Owner's number of well (if more than one) C3830
☒ New Well ☐ Reconditioned *Method:* ☐ Dug ☐ Bored ☒ Driven ☐ Deepened ☐ Cable ☐ Rotary ☐ Jetted

DIMENSIONS: Diameter of well 7.5 inches, drilled 116.75 ft.
Depth of completed well 98.95 ft.

CONSTRUCTION DETAILS
Casing Installed: ☐ Welded ☐ Liner installed ☒ Threaded 7.0" Diam. from 0 ft. to 116.75 ft.

Perforations: ☐ Yes ☒ No
Type of perforator used
SIZE of perfs in. by in. and no. of perfs from ft. to ft.

Screens: ☐ Yes ☒ No ☐ K-Pac Location
Manufacturer's Name
Type Model No.
Diam. Slot Size from ft. to ft.
Diam. Slot Size from ft. to ft.

Gravel/Filter packed: ☐ Yes ☒ No ☐ Size of gravel/sand
Materials placed from ft. to ft.

Surface Seal: ☐ Yes ☒ No To what depth? ft
Materials used in seal
Did any strata contain unusable water? ☐ Yes ☐ No
Type of water? Depth of strata
Method of sealing strata off

PUMP: Manufacturer's Name
Type: H.P.

WATER LEVELS: Land-surface elevation above mean sea level ft.
Static level ft. below top of well Date N/A
Artesian pressure lbs. per square inch Date
Artesian water is controlled by (cap, valve, etc.)

WELL TESTS: Drawdown is amount water level is lowered below static level.
Was a pump test made? ☐ Yes ☒ No If yes, by whom?
Yield: gal./min. with ft. drawdown after hrs.
Yield: gal./min. with ft. drawdown after hrs.
Yield: gal./min. with ft. drawdown after hrs.
Recovery data (time taken as zero when pump turned off)(water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test
Bailer test gal./min. with ft. drawdown after hrs.
Airtest gal./min. with stem set at ft. for hrs.
Artesian flow g.p.m. Date
Temperature of water Was a chemical analysis made? ☐ Yes ☐ No

CONSTRUCTION OR DECOMMISSION PROCEDURE
Formation: Describe by color, character, size of material and structure, and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of information. Indicate all water encountered. (USE ADDITIONAL SHEETS IF NECESSARY.)

MATERIAL	FROM	TO
Construction Details:		
Driving Casing:		
Drive 7-in. O.D. casing/	0	116.75
shoe to total depth.		
Sand/gravel	0	109.0
Caliche	109.0	116.75
Back fill/back pull	116.75	101.19
Casing Bentonite	96.25	55.25
	49.95	10.6
	7.45	6.9
	2.9	2.15
Install Tensiometer	101.19	96.25
Install Tensiometer	55.25	49.95
Install Tensiometer	10.6	7.45
Install Tensiometer	6.9	2.9
Natural fill added	2.15	0

Start Date 08/20/2002 Completed Date 09/19/2002

WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

☐ Driller ☒ Engineer ☐ Trainee Name (Print) D. E. Skoglie
Driller/Engineer/Trainee Signature David E Skoglie
Driller or Trainee License No. 1580

If trainee, licensed driller's Signature and License no.

Drilling Company Duratek Federal Services, Inc.
Address 345 Hills Street
City, State, Zip Richland, WA 99352
Contractor's Registration No. DURATFS990K5 Date 10/16/02

Ecology is an Equal Opportunity Employer. ECY 050-1-20 (Rev 4/01)

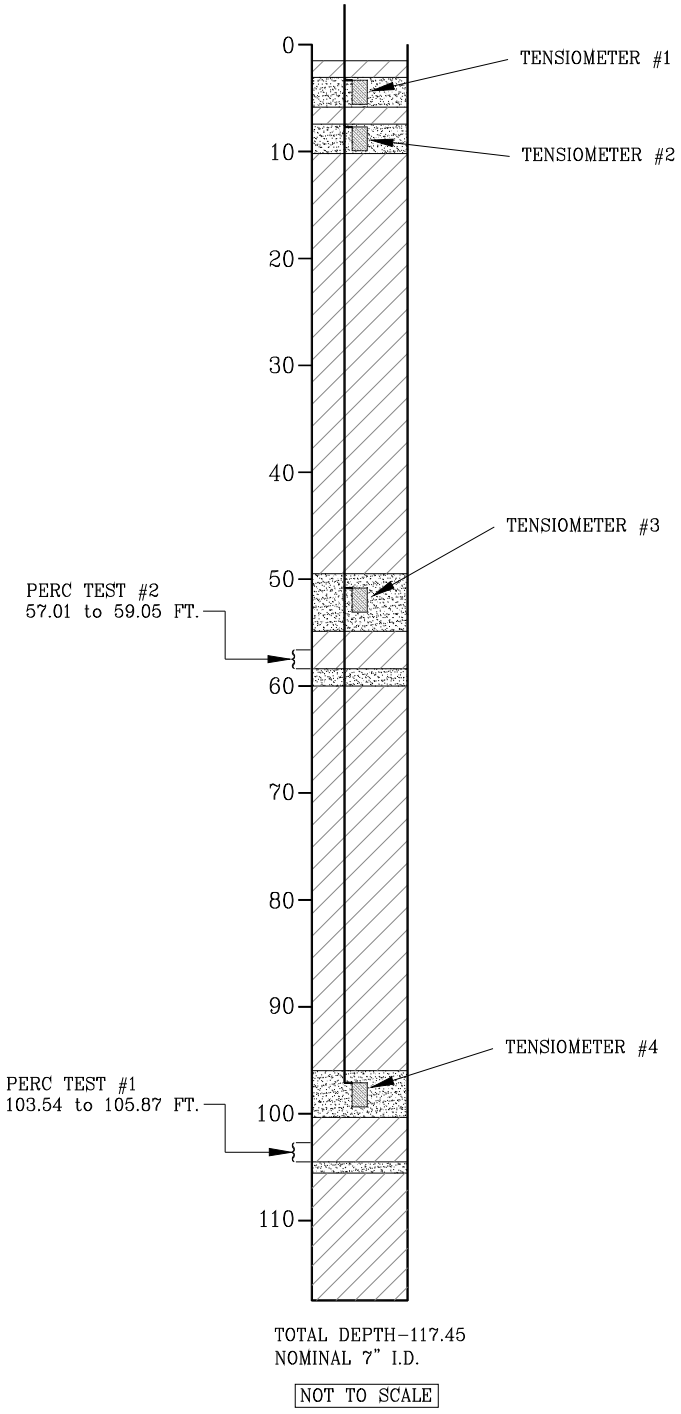
This page intentionally left blank.

APPENDIX I

VADOSE ZONE TENSIOMETER PLACEMENT

This page intentionally left blank.

C3830 INSTRUMENTATION



COMPLETION	
DEPTH (BGS-FT)	MATERIAL
0.00-2.15	NATURAL
2.15-2.90	BENTONITE
2.90-6.90	SAND
6.90-7.45	BENTONITE
7.45-10.60	SAND
10.60-49.95	BENTONITE
49.95-55.25	SAND
55.25-59.05	BENTONITE
59.05-59.95	SAND
59.95-96.25	BENTONITE
96.25-101.19	SAND
101.19-105.87	BENTONITE
105.87-106.99	SAND
106.99-117.45	BENTONITE

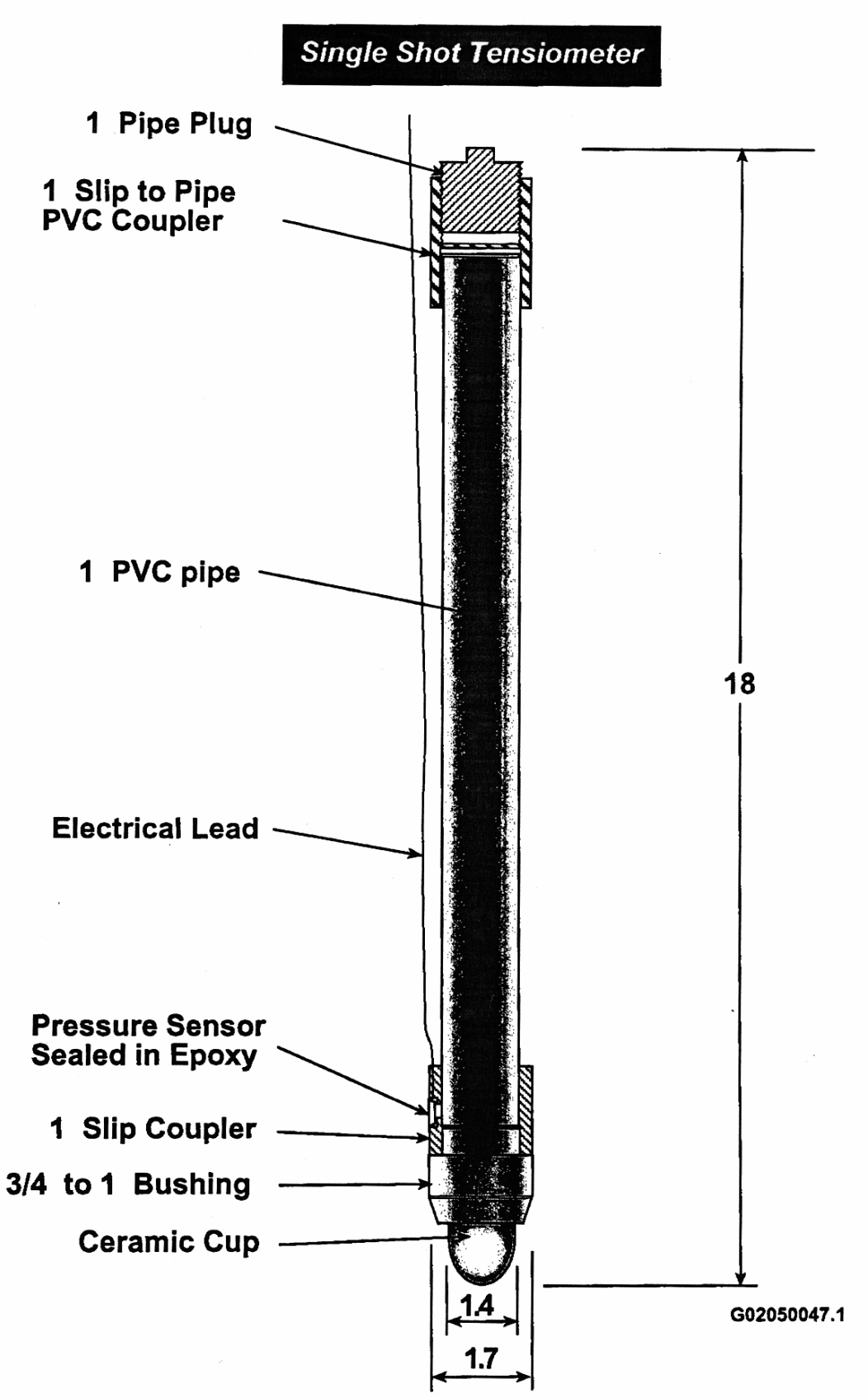
TENSIOMETER LOCATION	
TENSIOMETER NO.	DEPTH RANGE (BGS-FT.)
1	4.35-5.85
2	7.50-9.00
3	51.50-53.00
4	97.45-98.95

KEY

BENTONITE

SAND

TENSIOMETER


Single Shot Tensiometer
1 Pipe Plug
1 Slip to Pipe PVC Coupler
1 PVC pipe
Electrical Lead
Pressure Sensor Sealed in Epoxy
1 Slip Coupler
3/4 to 1 Bushing
Ceramic Cup
18
1.4
1.7
G02050047.1

Reynolds, Kent
From: "Gee, Glendon W" <glendon.gee@pnl.gov> [GTSD_HQ.GTSD_HQ_GWIA."glendon.gee@pnl.gov"] on behalf of GTSD_HQ.GTSD_HQ_GWIA."glendon.gee@pnl.gov"
Sent: Tuesday, September 10, 2002 4:07 PM
To: GTSD_HQ.GTSD_HQ_GWIA."Harold_A_Sydnor@rl.gov"; Reynolds, Kent; Skoglie, Dave; Gardner, Marty
Subject: RE: Sensor Placement


Mime.822

Kent: These plans are okay for us. We have extra long cable for contingency purposes so all should be fine as far as cable length and the sensors are not constrained by the proposed placement depths in any way.
gwg
-----Original Message-----

From: **Reynolds, Kent D**
Sent: Tuesday, September 10, 2002 3:48 PM
To: Sydnor, Harold A; Gardner, Martin G (Marty); Skoglie, David E; Gee, Glendon W
Cc: Knepp, Anthony J
Subject: Sensor Placement

Mr. Sydnor and I have reviewed the draft Moisture Logs generated in the field from C 3830 (TX-105). Several zones appear to be favorable for sensor placement and percolation testing.

For the sensor planned for approximately 100 ft BGS. Percolation test recommended for 104 to 106 ft BGS. Sample number S02083-17 was taken from 102.99 to 104.44 ft BGS and can provide laboratory derived data on lithology, moisture content, chemistry, etc. Moisture log data indicate the zone be at approximately 11% moisture content by volume. Lithology is assumed to be silt and fine to medium sand interbeds of the Cold Creek facies.

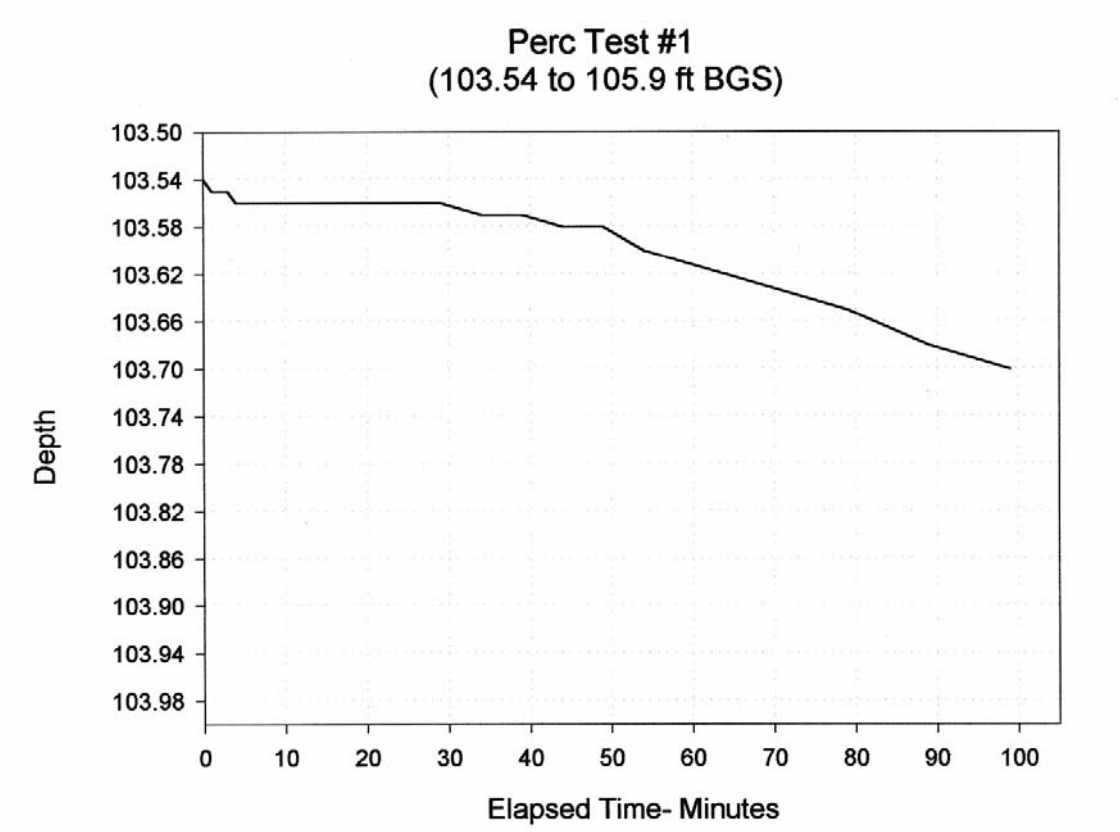
Sensor placement recommended to be 97.5 to 99 ft BGS Sample number S02083-15 was taken from 98.97 to 100.36 ft BGS and can provide laboratory derived data on lithology, moisture content, chemistry, etc. Moisture log data indicate the zone be at approximately 9% moisture content by volume. Lithology is assumed to be interbedded fine to medium sands and silts of the lower Hanford immediately above the Cold Creek.

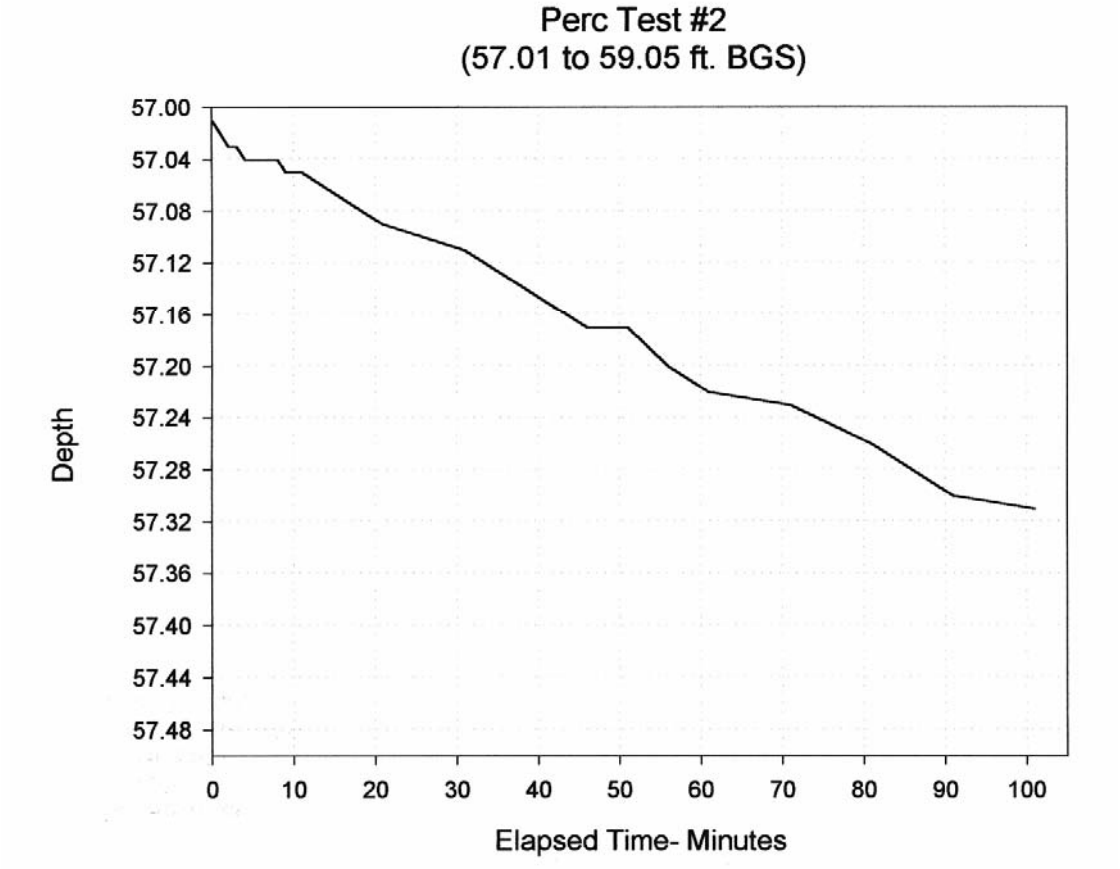
Sensor planned at 50 ft. BGS

Percolation test recommended for 57 to 59 ft BGS. Sample numbers S02083-08 and 09 were taken from56.99 to 59.7 ft BGS and can provide laboratory derived data on lithology, moisture content, chemistry, etc. Moisture log data indicate the zone be at approximately 8% moisture content by volume. Lithology is assumed to be medium to fine sands with some silt interbeds typical of Hanford sand facies.

Sensor placement recommended for 52-53.5 ft BGS. Sample number S02083-07 was taken from 52.98 to 54.36 ft BGS and can provide laboratory derived data on lithology, moisture content, chemistry, etc. Moisture log data indicate the zone be at approximately 8% moisture content by volume. Lithology is assumed to be medium to fine sands with some silt interbeds typical of Hanford sand facies.

Note: The samples from this probe hole are presently archived and are not planned to be opened until FY 03 at the PNNL 300 Area Laboratory. Therefore data pertaining to actual lithology and physical properties will not be available until some time into FY03.


Perc Test #1
(103.54 to 105.9 ft BGS)
Depth
103.50
103.54
103.58
103.62
103.66
103.70
103.74
103.78
103.82
103.86
103.90
103.94
103.98
0
10
20
30
40
50
60
70
80
90
100
Elapsed Time- Minutes


Perc Test #2
(57.01 to 59.05 ft. BGS)
Depth
57.00
57.04
57.08
57.12
57.16
57.20
57.24
57.28
57.32
57.36
57.40
57.44
57.48
0
10
20
30
40
50
60
70
80
90
100
Elapsed Time- Minutes

APPENDIX J

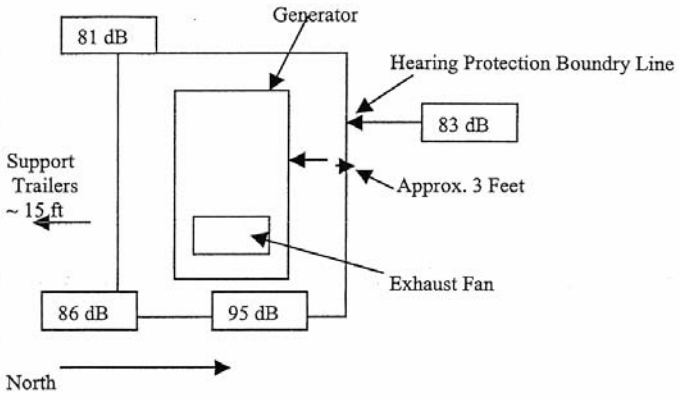
NOISE MONITORING

This page intentionally left blank.

Duratek
Federal Services

Date: May 16, 2002 Time: 07:00 am Location: TX Farm	Inspectors: Jason Sweesy/Duratek Safety
TX-TY Borehole Drilling	**Report** # 02-005

Background: Borehole drilling and sampling for characterization and migration of plumes found underground.

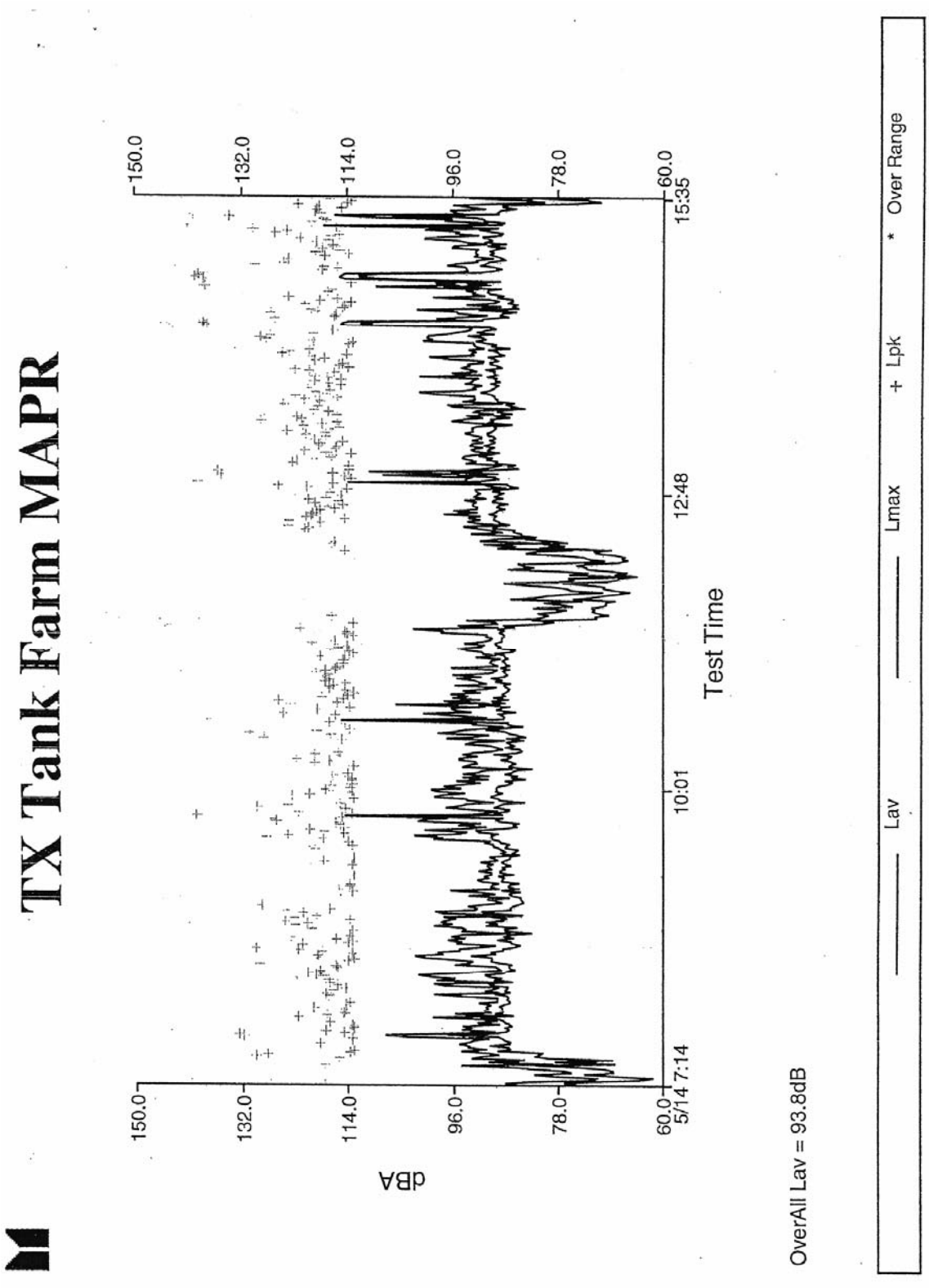
Citation	Findings
1. Completed real time noise survey of generator located to the north of the support area.	

COMMENTS:

General area monitoring was conducted with a Metrosonic dB-3100 Sound Analyzer (5711) calibrated with a Metrosonics acoustical calibrator (102 dB before and after; calibrated 12/20/01). Peak value was from the generator fan directly at the discharge. Informed client person In charge (PIC) of the results and analysis with recommendation to keep loitering around the postings to a minimum. According to the PIC the area outside of the boundaries is not occupied other than occasional foot traffic. The generator only runs when drilling operations are being conducted.

Analysis:
Hearing boundary postings are adequate for the site conditions. Minimal foot traffic with no personnel at the boundary greater than 4 hours. Should there be a need to be adjacent to the boundary for greater than 4 hours, a re-evaluation of the noise levels shall be conducted.

Page 1 of 1
Report #02-005


TX Tank Farm MAPR
dBA
150.0
132.0
114.0
96.0
78.0
60.0
5/14 7:14
10:01
12:48
15:35
Test Time
OverAll Lav = 93.8dB
Lav
Lmax
+ Lpk
* Over Range

Summary Report

Test Location.....TX Tank Farm
Employee Name....Kelly Olson
Employee Number...0029732
Department.....Blue Star Employee
Comment.....performed normal borehole drilling activities. Good range of work duties.

Metrosonics db-3100 SN 5711 V1.7
Report Printed 05/15/02 at 07:25
Exchange Rate...3 dB
Filter...A Wt.
Dose Criterion....85 dB
Response.....Slow

Calibrator Type.....Accustical SN..6114
Calibrator and Calibration Date..12/20/01

Pre-Test Calibration Time: 05/14/02 at 06:30
Pre-Test Calibration Range: 40.3dB to 140.3dB

Post Calibration 05/15/02 at 06:25

Test Began.....05/14/02 at 07:14
Test Length....0 Days 08:22
Test Ended...05/14/02 At 15:36

Lav.....93.8dB
Lav (80)...93.8dB
Lav (90)...93.1dB
SEL.....138.5dB

TWA.....94.0dB
TWA (80)..94.0dB
TWA (90)..93.3dB

Lmax...117.8dB on 05/14/02 at 15:21
Lpk.....141.0dBon 05/14/02 at 15:22

Time Over 115.0dB 0 Days 00:00:04

8 HR % Dose (80dB Cutoff).....804.09%
8 HR % Dose (90dB Cutoff).....687.61%

This page intentionally left blank.